

INTERNATIONAL MEDICAL MAGAZINE.

Vol. V.]

JUNE, 1896.

[No. 5.

ORIGINAL COMMUNICATIONS.

PROGRESS IN RADIOGRAPHY.

BY ARTHUR W. GOODSPEED, Ph.D.,

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FOR the last ten weeks in the Physical Laboratory of the University of Pennsylvania, we have been paying especial attention to a reduction in the time of exposure necessary to produce clear and sharp pictures of the living human skeleton. That this was exceedingly desirable appears from the fact that not long ago it was necessary to make an exposure of from thirty minutes to one hour in order to produce a really good picture of the metacarpal bones. In most of the cases where it would be necessary to apply this method to surgical diagnosis, such a length of exposure would prove almost prohibitory, for obvious reasons. The shortest exposure that the writer has attempted was four and one-half seconds, by which, on April 20, a perfectly clear and sharp negative of the wrist and bones of the forearm was produced.

This successful reduction in the time of exposure has been accomplished by improvements in the arrangement of the exciting apparatus, in the form of Crookes' tube employed, and lastly, but by no means of least importance, in the development of a specially sensitized photographic plate. In seeking the best plate, the attention of the writer was called by Mr. Sachse, of Philadelphia, to the very thick coating found upon some imported German plates made by Schleussner, of Frankfurt-am-Main. It was also evident that the early negatives produced by the Germans were far denser than any made in this country. With a view to developing the sensitive plate to produce the best results possible, Mr. John Carbutt has given untiring attention and made many experiments. Most of the Carbutt plates have been tested by the writer in comparison with other makes, and those now

in use give by far the best results of any yet tried. The negatives from which the illustrations accompanying this article have been reproduced are samples of the plates referred to.

No. 1 is the picture of the wrist of a middle-aged lady, who consulted Dr. Ashhurst at the University Hospital in regard to a possible operation. This lady twenty years ago received nearly a full charge of shot from a gun that was accidentally discharged by her nephew. Without the aid of the radiograph only six shot could be felt through the skin. The radiograph shows over thirty to be present.

No. 2 presents a very interesting case. A boy ten years of age, living in Germantown, has had a sore and at times a much inflamed foot since last August. His physician, Dr. Müller, advised that a radiograph might be useful in determining whether the presence of a foreign body was the cause of the trouble. Such was suspected though nothing was known. The picture speaks for itself, and is so sharp and distinct that even the eye of a good-sized needle is clearly visible in the negative. The plate was bound to the top of the foot and the tube was placed about ten inches opposite the sole. The exposure was only a few seconds. An operation was performed a few days ago, and the needle easily removed.

No. 3 is a radiograph of the skull. For this an 8 x 10 plate was bound to the side of the face, bearing against the cheek-bone and nose. The tube was placed about two feet away on a line perpendicular to the middle of the plate. The exposure was twenty minutes.

Nos. 4 and 5 are radiographs of the upper and lower portions of the trunk of a full-grown living subject. 16 x 20 plates were used, the subject lying flat upon his back upon the plate. The exposures were forty-five minutes each. Since making these negatives the time of exposure for such work has been very much reduced. In fact, on Monday evening, May 18, the writer, with his assistant, Mr. G. C. McKee, produced a negative fully equal in quality to the first with an exposure of only *one minute*. The coil used was made many years ago by Ritchie, of Boston, and is capable under favorable conditions of giving a spark sixteen inches long in air. The tube used is essentially a *focus tube*, but is of German make, and has been in the cabinet of the University a number of years. It has a platinum disk in the focus of a concave aluminum projector. The latter is made the cathode. The coil used by the writer for most of his experiments is an old-fashioned Ruhmkorff coil giving about a ten-inch spark in air. He has also used tubes made in this country by both Queen & Co., of this city, and Knott, of Boston, with good success.

No. 6 shows the hand of Dr. Packard's case of acromegaly.

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- I. Röntgen's Discovery. *Medical News*, February 15, 1896.
- II. Experiments in the Röntgen X-Rays. *Science*, February 14, 1896.



PLATE II.—Broken needle, showing eye, embedded in the dorsum of the right foot.

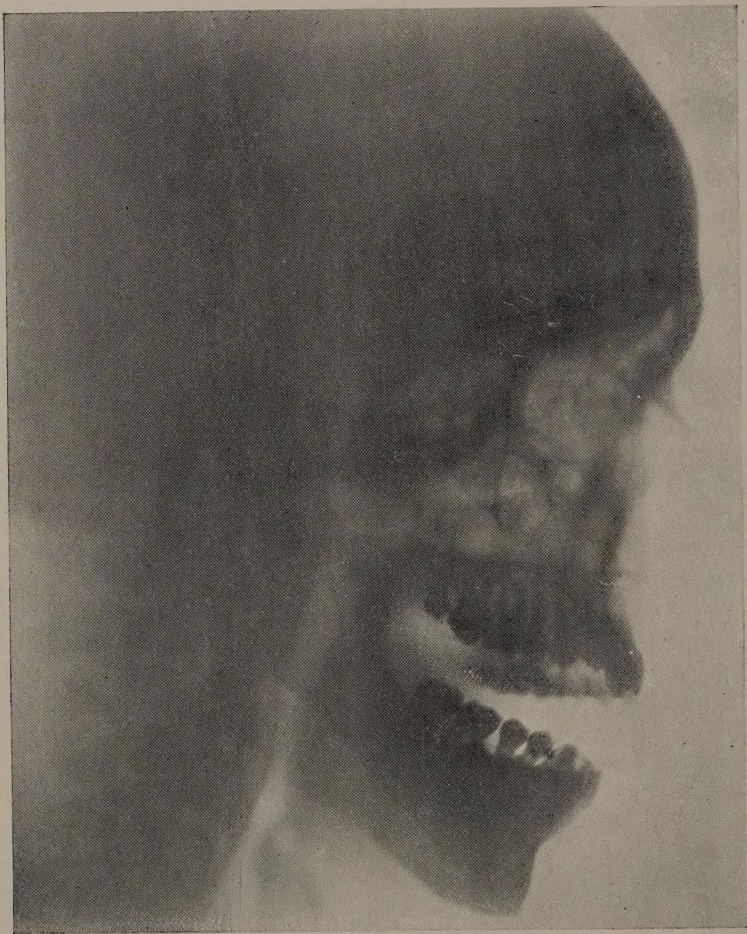


PLATE III.—Skiagraph of a normal skull. The nasal bones and the fillings in the teeth are well seen. The cervical vertebræ are distinguishable in the original, but barely so in the half-tone. (Reduced.)

- III. Paper on the Röntgen Phenomena, read before the American Philosophical Society, February 21, 1896. *Proceedings of the Society*.
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ON SKIAGRAPHY OF THE HEAD AND TRUNK.

BY W. W. KEEN, M.D.,

Professor of the Principles of Surgery and of Clinical Surgery in the Jefferson Medical College, Philadelphia.

I HAVE been asked by the editor of the MAGAZINE to make a few remarks on the very remarkable skiagraphs of the head and upper and lower trunk, of which plates are reproduced in this number of the INTERNATIONAL MEDICAL MAGAZINE.

Attempts have been made by Edison and others to skiagraph these thick parts of the body, but so far the pictures have been so obscure that no certain inferences could be drawn from them. Professor A. W. Goodspeed, of the University of Pennsylvania, however, has far eclipsed all others in these most beautifully clear skiagraphs. Unfortunately, though so well done, the reproductions are still inferior to the fine originals of the full size of the human body.

The skiagraph of the head (Plate 3) is taken with the mouth open. The teeth of the upper jaw show that the Crookes tube was below the level of the mouth, since it shows both the hither and the farther teeth perfectly well at different levels. For the same reason the outline of the inferior border of the lower jaw appears double, the lighter shadow (towards the lower border of the picture) being the farther side of the jaw, showing only one thickness of the bone, the darker shadow is caused by the superposition of the shadows of the hither and farther horizontal rami of the jaw. Any abnormalities of the jaw would have been easily seen, provided they were bony. The antrum, in spite of the fact that the antra of both sides are looked through, is remarkably translucent. The irregularities in translucency—that is to say, the streaks of darker shade—show the ridges and other thickenings of the bone in the antrum. Were any bony tumor present in either antrum, it would be seen. A sarcoma or other similar tumor would, of course, not betray its presence. The same remark applies to the orbit, which is unexpectedly translucent, and above it will be seen a light spot corresponding to the frontal sinus. The nasal bones show as a light shadow, and were mistaken by several persons who looked at the

picture in my presence for eyelashes, forgetful of the fact that the eyelashes would not show in the least.

The larynx is plainly perceptible, the thyroid cartilage being dense enough to throw a shadow slightly denser than that of the soft parts. I presume that the darker shadow at the upper border of the larynx is caused by the hyoid bone. Between it and the jaw is seen the slighter shadow of the muscles running upward from the hyoid bone. Any foreign body not permeable to the X-rays, such as a jack-stone, would be instantly detected in this portion of the body. It will be noticed, also (at least in the original), that the bodies and the spinous processes of the vertebræ show with moderate distinctness. Were there any tubercular abscess, fracture, or dislocation in this region, there would be but little difficulty in determining not only the fact, but the details of such a lesion.

The cranium is a blank. No variation of shadow appears excepting where the malar, zygoma, jaw, and mastoid unite in a rather confused mass in the centre of the picture.

It is but another illustration of the fact that there will probably be little if any possibility of skiagraphing the interior of the cranium. Should we be able hereafter to increase the power, especially the power of penetration of the rays, and increase their quantity as well as the sensitiveness of the photographic plate, it is possible that we may be able to do something with endocranial skiagraphy; but, at present, it is about the only region of the body still beyond our reach.

It will be observed that the bodies of the cervical vertebræ (Plate 4), even the cupping of their upper and lower surfaces, show with remarkable clearness, as also the intervertebral disks, and that if there were any disease of these bones,—for example, tubercle, producing a high Pott's disease,—it would be easy to determine the exact position of the lesion and the amount of destruction of the vertebræ. Were there a gunshot wound or a fracture-dislocation of the cervical region, every detail of it could be made out. In the dorsal region the shadows of the bodies of the vertebræ are indistinctly seen, being obscured to a considerable extent by the continuous shadow of the sternum. Even there, however, in the original skiagraph, the intervertebral substances show faintly, but yet positively. It will be observed, also, that in almost all of this portion of the spine, in front of which the trachea and œsophagus run in the middle line, if a foreign body, a metallic one at least, were lodged in either, it could be seen with distinctness. Very recently White (*University Medical Magazine*, June, 1896) has removed a jack-stone by tracheotomy, which was beautifully located by means of skiagraphy.

The posterior portions of the ribs are well seen, and, in view of their mobility, with extraordinary clearness of outline, though, of course, the posterior portion moves but slightly. It may be for this reason that the anterior portions do not show excepting in the first and second, and faintly in the third and fourth ribs. Of course, the cartilages of the ribs would

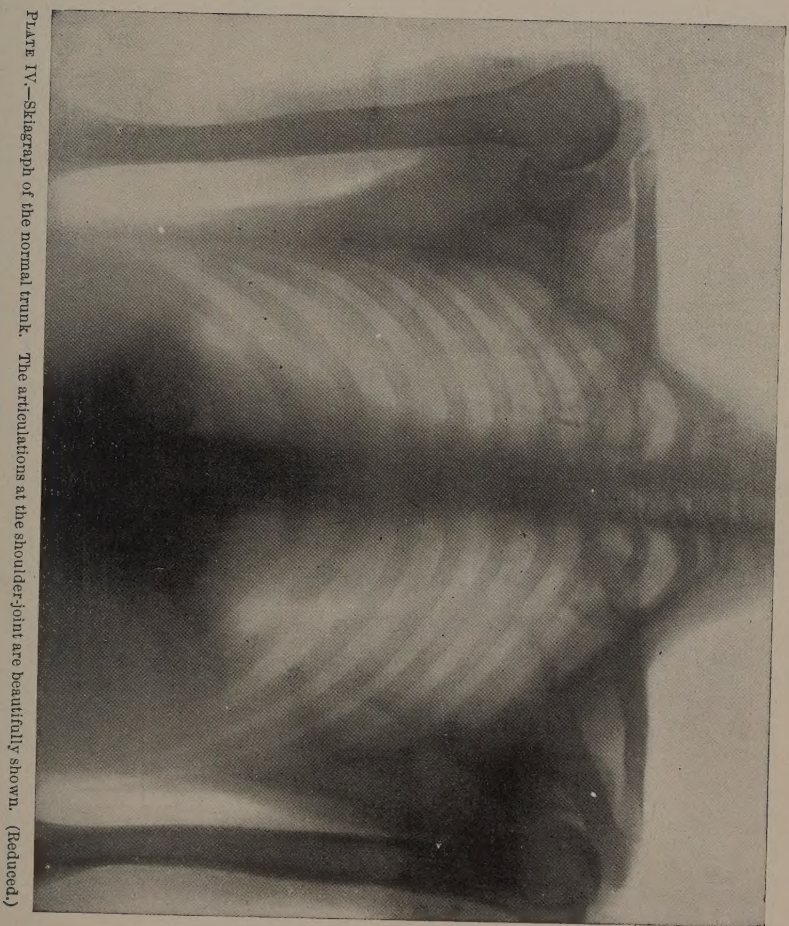
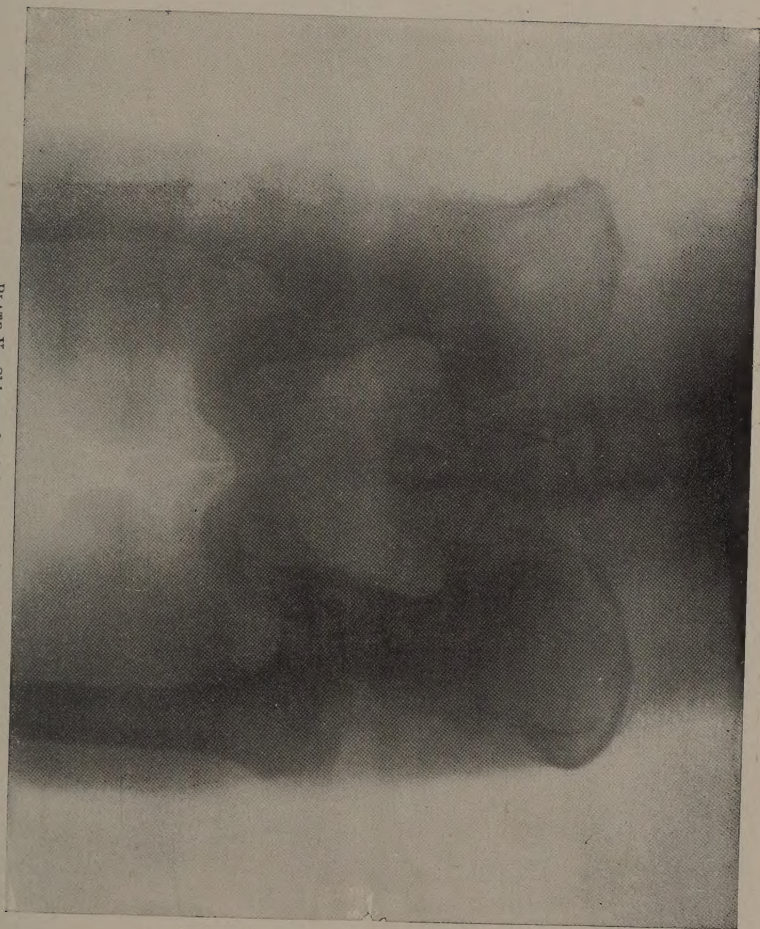


PLATE IV.—Skiagraph of the normal trunk. The articulations at the shoulder-joint are beautifully shown. (Reduced.)

PLATE V.—Skiagraph of the normal male pelvis.



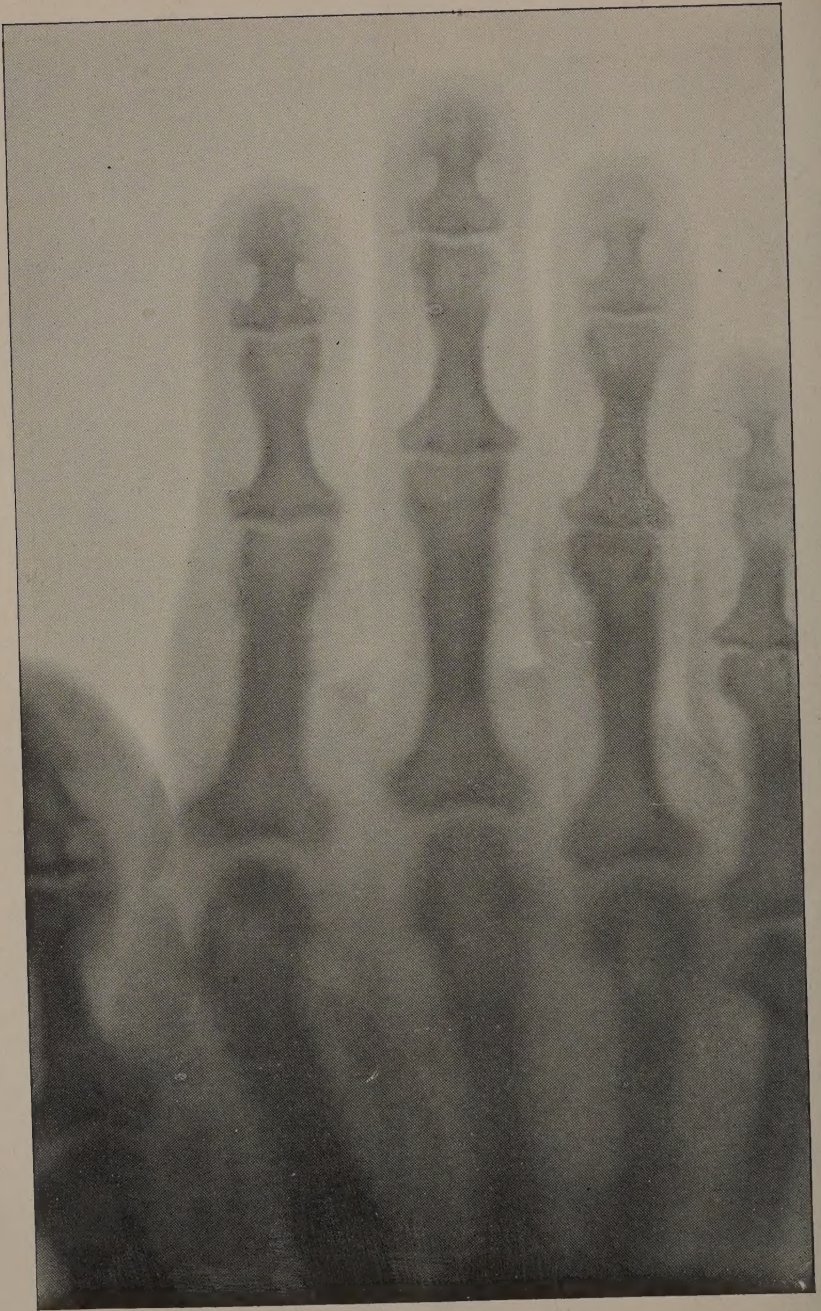


PLATE VI.—Dr. F. A. Packard's case of acromegaly ("Transactions of the College of Physicians,"
vol. xvi.), showing hyperostosis.

not cast any shadow. Were there a cervical rib, which, in a case demanding surgical interference, it would be of the greatest importance to know, this would be shown very readily. Even the articulations of the ribs with the bodies of the vertebræ in the cervical region show beautifully. In the plate this is not nearly so well seen as in the original skiagraph.

The clavicles are very distinct. Fracture, and especially "green-stick" fracture in a child, or any disease of the bone producing its enlargement or thickening would readily be seen. Dislocation of either end of the bone would be perfectly perceptible. The thicker parts of the scapula show very well, though the body of the scapula, by reason of its thinness, only casts a faint shadow. The spine of the scapula can be seen, and the coracoid process, so that fracture of the latter could be determined very readily. The acromion shows well, and I would specially call attention to the darkening of the shadows where the spine and the coracoid and the spine and the head of the humerus by their overlapping cause deeper shadows.

One of the most striking and valuable points of the skiagraph is the distinctness with which the shoulder joint is seen. Were there any erosions of the head of the humerus or of the glenoid cavity, for instance by tubercular disease, any enlargement of the shaft of the bone by central sarcoma, any abscess in the head or the shaft of the bone, ankylosis of the shoulder-joint, or in fact any form of disease which would change the outline of the bone or affect its permeability to the X-rays, they could be seen with startling distinctness. Fracture of the anatomical neck could be placed beyond doubt.

The skiagraph of the pelvis (Plate 5), though not so clear as that of the chest, is still an unexpectedly and extraordinarily good result. The bodies of the lumbar vertebræ are obscurely seen, and the same may be said of the sacrum, of which, in the original, the intervertebral substances can be faintly seen. The coccyx also shows.

One of the most important points to be observed about the skiagraph is that the upper opening of the pelvis is so clearly seen that a measurement could be made with absolute accuracy in order to determine whether a foetus could be delivered or not in the case of a deformed pelvis. If the dimensions of the skiagraph should not be absolutely the same as those of the original pelvis, a proportionate allowance could be very readily made by measuring the distance between the crests of the ilia, which could be measured with accuracy on the body or taken as a standard. Any fracture or deformity of such a pelvis could be determined very readily. Osteosarcoma of the ilium, fracture, or any other disease or injury altering its outlines would be perfectly demonstrable. It is doubtful whether disease of the hip-joint itself could be made out from such a skiagraph; but fracture of the neck of the femur or of the greater tuberosity could be determined very readily.

I certainly congratulate Dr. Goodspeed on his remarkable skill and success in this new department, which in these particular cases I think

surpasses any results of European or other American experimenters. That skiagraphy has progressed so far as to enable us to obtain such remarkable results is most encouraging. Sixty or even thirty days ago such a result would have been impossible. The progress of the art, therefore, has been most rapid and satisfactory. Many of the details which are wanting in the present skiagraphs will unquestionably be supplied as a result of future improvements in our methods.

THE APPLICATION OF THE X-RAYS TO THE DIAGNOSIS OF MORTON'S PAINFUL AFFECTION OF THE FOOT, OR METATARSALGIA.

BY THOMAS G. MORTON, M.D.,

Senior Surgeon, Pennsylvania Hospital; President, Philadelphia Academy of Surgery.

In the *American Journal of the Medical Sciences* for January, 1876, I called the attention of the profession to a peculiar painful affection of the fourth metatarso-phalangeal articulation. The disease in question was described as a painful affection of the plantar digital nerves, directly caused by pressure upon, or pinching, them or their articular branches, by certain portions of the fourth or fifth metatarso-phalangeal articulation.

The reason given for the fact that the fourth toe was the almost invariable seat of origin of the train of painful and neurotic symptoms was founded upon anatomical considerations. Attention was directed to the fact that the metatarso-phalangeal joints of the first, second, and third toes are found on almost a direct line with each other, while the head of the fourth metatarsal is from one-eighth to one-fourth of an inch behind the head of the third, and the head of the fifth is from three-eighths to half an inch behind the head of the fourth; the joint of the third, therefore, is slightly in advance of the joint of the fourth, and the joint of the fifth is considerably behind the joint of the fourth. The fifth metatarsal joint is so much posterior to the fourth that the base of the first phalanx of the little toe is brought on a line with the head and neck of the fourth metatarsal bone, the head of the fifth metatarsal being apposed to the neck of the fourth.

On account of the character of this peculiar tarsal articulation, there is very slight lateral motion in the first three metatarsal bones. The fourth has greater mobility, the fifth still more than the fourth, and in this respect it resembles the fifth metacarpal. Lateral pressure brings the head of the fifth metatarsal and the phalanx of the little toe into direct contact with the



PLATE II.—Skiagraph of normal foot.



PLATE III.—Distortion of foot, showing deviation of phalanges; crowding of the third and fifth metatarsal bones upon the head of the fourth.

head and neck of the fourth metatarsal, and to some extent the extremity of the fifth metatarsal rolls above and under the fourth metatarsal.

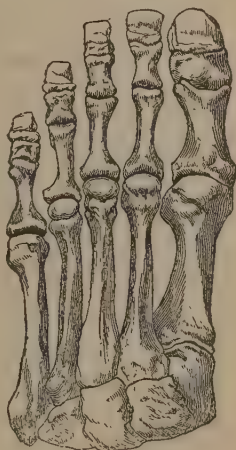
The mechanism of the affection now becomes apparent, when we consider the nerve-supply of the parts. The branches of the external plantar nerve are fully distributed to the little toe and to the outer side of the fourth; there are also numerous branches of this nerve deeply lodged in between these toes, and they are liable not only to be unduly compressed, but pinched by a sudden twist of the anterior part of the foot. Any foot movement which may suddenly displace the toe, when confined in a shoe, may induce an attack of this neuralgia. In no instance has any abnormality or other specific cause for the disease been detected.

I have not seen occasion, in the twenty years since the above explanation of the disease was given, to modify or change my views as to its pathology.

I shall present briefly the clinical histories of three hitherto unpublished cases of this peculiar neuralgia of the foot, or "metatarsalgia," as it has been more recently called, and invite a comparison of the illustration made from a dissection of a foot, which appeared in my former communications upon this subject (Plate I.), and of the results obtained in a skiagraph of a normal foot; and also of the results obtained by submitting two patients actually suffering with this condition to the test of the X-rays, recently introduced by Professor Röntgen, and again of the two skiagraphs, one of a foot operated upon some years ago, and another of the normal foot of the same individual.

The skiagraphs were made for me by Professor Goodspeed, of the University of Pennsylvania. The details of the method are familiar and need not be described, beyond mentioning the fact that the photographic plate was affixed to the dorsum of the foot, while the sole was exposed to the rays; the time of exposure varied from twenty-three seconds to two minutes and twenty-five seconds. I wish to direct attention to the peculiar distortion of the phalanges which is seen in Plates III., IV., and V., admirably shown in each of the pictures, which are the first that have been taken during life, and which would seem to furnish, with the history of neuralgia, clear indication for operation. The fact that the metatarsophalangeal joints of the first three toes are on a level, as shown in my original diagram, is also fully demonstrated in the skiagraph of the normal foot, herewith exhibited for the purpose of contrast with the others. The histories of these typical cases were written by the patients themselves:

PLATE I.



Normal foot.

CASE I.—Mrs. S. G. W. (Plate III.). “The trouble in my foot began a little more than a year ago, with a cramp, which was at first relieved by removing the shoe, after which I could again put it on. This, however, lasted only a short time, and I soon found that I could not keep the shoe on at all. From then to the present time the pain has not changed any. The first symptom is a heavy, hot feeling in the foot, which frequently passes away soon, and I have no further unpleasantness; but when it does continue, it follows with a shaky, loose pain in the bone of the fourth toe, and my foot refuses to hold my weight. If I continue to walk, the pain becomes like a sore finger; it makes me sick and nauseates me. The only relief is from a hot foot-bath, as hot as I can stand it, with a piece of common washing soda or a quantity of baking soda thrown into the bath. This, with a good strong cup of tea, a hot-water bag to my foot, and plenty of rest, usually gives me relief. I have gotten rid of the trouble in an hour or two by attending to the same as soon as it began to trouble me. At other times, when I have tried to force myself to use the foot, the pain has lasted as long as two days, and again the trouble has left me at times for three weeks.”

CASE II.—Dr. G. L. R. (Plate IV.). “I first noticed the painful symptoms ten years ago; they seemed to be located about the metatarsal joint of the fourth toe; the pain was erratic in character, sometimes radiating to the calf of the leg and thigh, now and then at the extremity of the toe, giving a sensation as though the nail was being lifted with a hot iron. Cold weather gives almost entire relief. Hot weather, a close-fitting shoe, and walking aggravate it. A habit of stepping from my carriage on my left foot first greatly aggravated and, I now believe, was one of the early causes of it. The pain has varied from a mere annoyance to an agonizing, unbearable condition. At present, due to a capacious shoe and a flannel roller, I am not suffering very much. Whether or not the relief will be permanent, warm weather alone will determine.”

CASE III.—Mrs. A. R. U. (Plate V.). “When twenty-three years of age, I experienced the first symptoms of the severe malady which afterwards developed in my right foot and proved the cause of agonizing attacks from which I continued to suffer, until entirely relieved by the operation performed about seventeen years ago. The first attack occurred one day while taking a short walk, when I experienced an uncomfortable, numb sensation under the ball of my right foot, as though my stocking had formed a crease there. On my return home, I immediately removed my shoe and rubbed the affected part for a while, when all discomfort disappeared. Some months elapsed before I had another attack, but they gradually became more and more frequent, the intervals of months giving place to those of weeks and even days, until finally I could not promise myself any certain immunity. As the attacks became more frequent, the benumbed feeling was accompanied by the most excruciating pain. A seizure would occur generally in the afternoon. Then I would sit in a chair with my foot resting heavily on the floor, which seemed to afford me more strength to endure the intense agony than any elevated position. I had to be assisted to bed. At such times it was necessary to prop up the bedclothing that it might not touch my toes, which continued very sensitive for hours.

“One doctor called my malady gout. In answer to my questioning, a prominent surgeon said, ‘We will call it toeache;’ another attributed it to defective circulation. The malady continued to increase both in frequency and severity, until I had the good fortune to consult you, and in so doing, ascertained that you had already discovered the origin of, and remedy for, this most painful condition. The operation you shortly performed produced the most satisfactory results. I have never had any return of the dreaded attacks, and my right foot, as well as my left, has been, to all intents and purposes, in a perfectly normal condition.”



PLATE IV.—Showing same distortion as in Plate III.



PLATE V.—Showing result in a case of metatarsalgia after excision of the fourth metatarsophalangeal joint.

LARYNGEAL VERTIGO.¹

BY FREDERICK I. KNIGHT, M.D.,

Boston.

UNDOUBTEDLY most of my hearers are familiar with cases of momentary loss of consciousness after cough, to which attention was first directed by Charcot in 1876. Since then cases have been reported and the subject more or less fully discussed by other observers. I, myself, contributed a paper on the subject to the American Laryngological Association in 1886. The name "laryngeal vertigo," which Charcot applied to these cases, and under which they have since been reported, is an unfortunate one, as in most of them there is no true vertigo. Kinshaber and McBride report their cases as "spasm of the glottis," but in most cases there is no evidence of glottic spasm. Gray calls the affection "laryngeal epilepsy," but many cases present no evidence of epilepsy.

It seems to me that the factors concerned in producing the condition are different in different cases, which makes it difficult to find a satisfactory name for it.

If we take a comprehensive view of all cases on record, we shall find that the cerebral condition can sometimes be described as syncope, which has been produced by disturbed cerebral circulation, such as we have from long-continued rapid breathing, and which was formerly employed to produce momentary unconsciousness for minor surgical operations; and sometimes it can better be described as an exhibition of "le petit mal." In some cases there is not the slightest evidence of epilepsy, and in others we find convulsive movements of the limbs, head, and face, and, in a few cases, mental confusion after the attack.

We shall also find that there is a *predisposition* to syncope or "le petit mal" in these cases, as shown from their occurrence from other than laryngeal causes. Among the fifteen collected cases which formed the basis of my paper in 1886 there was one (Kinshaber's) in which the first loss of consciousness occurred from sudden emotion, and was not preceded by cough. Subsequent attacks, though apparently caused by emotion, were preceded by cough, and Gray's patient had been subject, seventeen years before, after a scalp-wound by a bullet, to losses of consciousness like those he had later after cough; and the patient whose case I shall report to-day had one attack without cough.

We shall find, thirdly, that the exciting causes of the attacks are various. We have to do only with excitation originating at the glottis. This may be

¹ Read before the American Climatological Association at Lakewood, N. J., May 12, 1896.

due to different conditions, organic or functional. We all remember Sommerbrodt's patient, who was cured of epilepsy by the removal of a pediculated polyp of the larynx. Spasm of the glottis, or the rapid succession of closures of the vocal cords in coughing, may produce loss of consciousness by disturbance of the cerebral circulation.

I will now relate the case of a patient whom I have seen recently, and who excited in me a renewed interest in this affection. A man, fifty-four years of age, took cold at the end of September last, and had had cough since that time, till I saw him early in November. He told me that he had had a dozen attacks of loss of consciousness after fits of cough, none of the fits of cough being very severe. He also said that he had had one attack which was not preceded by cough. At times he had had twitching of the face and limbs without loss of consciousness.

On examination I found nothing marked in the larynx. There were moist râles at the base of the left lung. Pulse 80, very weak. The first sound of the heart was also very weak, suggesting degenerative disease. It seemed to me that the attacks in this case were due to syncope from a weak heart, which any disturbance like coughing might bring on, though the muscular twitching suggested nervous irritability also.

The points to which I would invite attention and discussion are these:

1. That cases of loss of consciousness after cough are not all produced in the same way.
2. That the cerebral condition may be due to syncope or le petit mal.
3. That there is a general predisposition to one or the other of these conditions.
4. That the exciting causes are various, sometimes organic and sometimes functional.

THE TREATMENT OF CERVICAL TUBERCULOUS ADENITIS.¹

BY E. FLETCHER INGALS, A.M., M.D.,

Chicago.

BEFORE the days of antiseptic surgery the treatment of enlarged lymphatic glands was left largely to the physician until suppuration occurred, and then they were allowed to rupture spontaneously or opened by a large incision, and were healed after a long period of suppuration, or were removed by the surgeon's knife; but within the last few years the comparative impunity with which operations may be made has led to a hasty resort to

¹ Read before the American Climatological Association, at Lakewood, N. J., May 12, 1896.

the knife in these as well as in many other cases, a practice which I am glad to believe is now falling into disrepute with the best surgeons. About a century ago chloride of calcium was recommended for the reduction of enlarged cervical glands, and was often given with the most gratifying results. Various other remedies were similarly employed with more or less benefit, the most important of these being iodine or some of its preparations. Under a course of treatment with one of these alteratives in a large percentage of cases the enlarged gland slowly disappeared. In less fortunate cases where the remedies were not employed soon enough, or where, for some reason, they did not produce a satisfactory result, the disease progressed for months or years, usually being attended by the suppuration of gland after gland with prolonged discharge. In many such cases the suppurating cavities finally healed, leaving the person badly scarred, but otherwise little, if any, the worse for this delayed termination, and in others, although the enlarged glands disappeared and the suppurating cavities healed, the patient remained in poor health the remainder of his days; again, with some few, though in a much smaller percentage than generally supposed, pulmonary tuberculosis develops and with its progress and usual termination the history of the case is closed.

While there seems to me no doubt that some cases of cervical adenitis should be operated upon promptly, I feel very confident that there are many others that do better under medical treatment. I am glad to find that Nicholas Senn, who enjoys the highest reputation for skill, good judgment, and conservatism, does not favor promiscuous removal of these growths, but where the glands are small and where the constitutional symptoms are not pronounced, recommends, first, a thorough trial of guaiacol internally, which treatment he tells me effects a cure in many instances.

It was formerly my practice to treat cases, in which the glands were not greatly enlarged, with iodides or chloride of calcium, but latterly I have used guaiacol or the carbonate of creosote, and injected these glands, from time to time, with a solution of carbolic acid of from two to five per cent. strength. Severe cases I have referred to a surgeon. During an experience of twenty-five years I have seen my fair proportion of good and poor results in these patients when treated by medical means, and in those cases that seemed entirely refractory to such measures. I have seen a number of cases of suppuration in enlarged cervical lymphatic glands, and have tried various methods of treating the cavity before opening it, such as the repeated injection of solutions of carbolic acid and emulsion of iodoform, but do not at present recollect of any case, excepting the one I now report, in which a successful cure of the suppurating cavity was made without resort to free opening. In the present case a few injections resulted in complete cure, and I am led to believe that similar treatment might be effectual in most cases of the kind, also that similar treatment will enable us to reduce non-suppurating glands much more rapidly than medicinal treatment alone, and will in many cases obviate the necessity of using the knife. This

does not seem too much to expect of an agent that can speedily stop the suppuration in a presumably tubercular abscess or cause steady diminution in the size of even a malignant tumor.

The case is that of H. E. V., a man thirty-three years of age, a clerk by occupation, who came to me first on the 14th of October, 1895, with the following history: Three years previously he had had a free hæmoptysis, which was followed six months later by another. Two other hemorrhages had occurred six and two months before he visited me, and finally a free hæmorrhage one week before I first saw him. At that time he was troubled with cough and suffered from pain in the left lung. His appetite and strength were fair, but he had lost flesh, was having diurnal fever, and presented all the symptoms of a person with pulmonary tuberculosis. He stated that he had used alcoholic stimulants to excess until within a week, and also that he had lost a brother from consumption. A physical examination revealed dulness at the apex of the left lung as low as the first rib, with broncho-vesicular respiration and occasional subcrepitant râles. I prescribed a third of a grain of the extract of nux vomica as a stomachic tonic, half a grain of the extract of hyoseyamus to relieve cough, and five grains of the carbonate of guaiacol for its supposed specific effects upon the tubercular process in the lung; these to be taken four times daily. I at the same time ordered after each meal drachm doses of maltine with the hypophosphites, which dose was rapidly increased to half an ounce and combined with fifteen grains of the chloride of calcium. At the next visit, nine days later, as the cough continued much the same the extract of hyoseyamus was increased to two-thirds of a grain, and, on account of the apparent decrease in his appetite, the carbonate of guaiacol was reduced to three grains. He was given at the same time two grains of the muriate of berberine, the extract of nux vomica and other remedies being continued as before. Two weeks later it was noted that he weighed one hundred and forty pounds and was somewhat improved.

Two weeks after this his pulse was found to be 120, but he had gained a pound and a half in weight. The same general course of treatment was continued, and on the 4th of December he was doing very well, the pulse being only 106. At this time there was a swollen cervical gland on the right side of the neck as large as a hen's egg. On December 19 he reported himself as very well, pulse was only 100, and he had gained about five pounds in weight, but the swollen gland had suppurated. Owing to frequent satisfactory results which I had obtained from injections of lactic acid into tumors both benign and malignant, and to the good results which had sometimes attended its application in tuberculous ulceration, I at this time decided to inject lactic acid into the abscess cavity. With an exploring syringe I withdrew a quantity of pus amounting to about two drachms, and without removal of the needle injected a similar amount of sterilized water containing three per cent. of carbolic acid and twenty per cent. of lactic acid. This was allowed to remain a few minutes and then with-

drawn. The internal treatment was continued as before. I did not see the patient again for three weeks, but at that time the swelling of the right side of the neck was considerably smaller and much less painful, though it still contained fluid. Upon aspirating the cavity again I was gratified to find that instead of pus it contained only about half a drachm of thick greenish serum, with a few white flakes, which may have been purulent in character. At this time I injected half a drachm of a solution containing three per cent. of carbolic acid and twenty-five per cent. of lactic acid, and left it in, sealing the puncture with collodion. The home treatment was continued. Two weeks later, when the patient next reported, the swelling upon the neck was found larger than at the last visit, and he stated that he had suffered considerable pain for several days after the injection. His general health, however, remained good, and he had gained another pound in weight. At this time I withdrew about a drachm of serum containing about ten per cent. of pus. The cavity was again injected with a six-per-cent. solution of carbolic acid and thirty per cent. of lactic acid in water with a little glycerin. This solution was allowed to remain a few minutes and then withdrawn. I did not see the patient again for about a month. I then withdrew a little less than a drachm of clear serum containing no pus, and injected forty minims of a forty-per-cent. solution of lactic acid with about five per cent. of carbolic acid. This was allowed to remain a few minutes and then withdrawn. At this time, as there seemed no further need for anodynes, the capsules containing the *nux vomica* and *hyoseyamus*, etc., were discontinued, and the patient was given carbonate of creosote in doses of ten minims the first day, eleven minims the second day, and so on until the amount should reach a drachm taken three times daily, after eating. The maltine with hypophosphites was continued. He did not report again until a month later, the 26th of March, then he stated that there had been a good deal of swelling and pain in the neck after the last injection. I found that the abscess-cavity had completely healed and the remnants of the swollen gland about it had nearly disappeared. The patient was feeling very well, had no cough, and seemed in a fair way to recovery. At this time he was taking the carbonate of creosote in doses of thirty-eight drops three times daily.

I have used a solution of lactic acid several times as a parenchymatous injection into tumors, some of which I felt certain were malignant, and I have nearly always had the satisfaction of seeing the growth gradually diminish in size. It has been my custom to begin with weak solutions of not more than fifteen or twenty per cent. strength, and gradually increase to thirty-five or forty per cent. strength. I have gone beyond this several times, but forty-five or fifty per cent. will usually produce a slough. I have found that even a fifteen-per-cent. solution of the lactic acid alone generally causes considerable suffering, but when combined with from two to five per cent. of carbolic acid it causes but little pain. In some cases I have injected a four-per-cent. solution of cocaine about three minutes

before the lactic acid was employed. By so doing the immediate pain otherwise caused by the lactic acid has been prevented, and the combination of lactic with carbolic acid has prevented subsequent suffering of any considerable degree. I usually inject from twenty to thirty minims of the solution at one treatment, and do not repeat it for a week or more. One case proves nothing at all, but my experience with lactic acid in this and other cases has been so favorable that I wish to urge you to try it. I make no claims to originality in the use of this agent, but I hope that this brief sketch may interest you and be of benefit to your patients.

SOCIETY REPORTS.¹

ON SUSCEPTIBILITY AND IMMUNITY, WITH SPECIAL REFERENCE TO SURGICAL CASES.

BY DR. ROSWELL PARK,

Of Buffalo.

DR. PARK divided this subject into three classes: (*a*) local and general; (*b*) congenital or acquired; and (*c*) absolute and relative. Man seems to be immune from numerous infections which are common to many of the domestic animals,—for instance, hog cholera, symptomatic anthrax, and chicken cholera,—while he is, in common with them, susceptible to the infection of anthrax, glanders, tuberculosis, and actinomycosis. Then, too, people differ very much among themselves in susceptibility to the same disease, and, of course, we explain this, so far as mere words can, by saying that at the time of exposure their bodies were not receptive or were resistant. Susceptibility seems to be inseparable from a study of the causes which favor infection, which should be considered in the following order: (1) the virulence of the infecting organisms and the amount introduced; (2) association; (3) hereditary influences; (4) local predisposition; (5) vestiges and disappearing organs and tissues; (6) pre-existing disease; (7) personal habits and environment; and (8) foetal infection.

Immunity may also be (*a*) local or constitutional, and (*b*) congenital or acquired, and acquired immunity may be natural or artificial. Immunity is, in some sense, a racial characteristic, as, for example, in the case of the Japanese, who, it is said, never have scarlet fever, but are more susceptible to beriberi than are Europeans, while the negroes escape yellow fever and

¹ Papers read before the American Surgical Association, Detroit, Michigan.

are less liable to malaria and dysentery than are Europeans. Acquired immunity is not necessarily a matter of juggling with bacteria of the disease in question, but may be produced by the employment of others.

In a general way it may be said that the conditions which afford protection, so far as they are controllable by the surgeon, are those which tend to increase what, for lack of better knowledge, we must call vital resistance, and to decrease vulnerability. In closing the author said,—

“The conclusions of surgical importance, which may be legitimately reached from the study of the conditions dealt with in this paper, are essentially these: that the surgeon in emergency cases has to do the best he can, not merely with the means at hand, but with the tissues at hand; and here, so long as he can control what may happen outside of the body, he has done his full moral and legal duty. On the other hand, in any case where patients deliberately come under observation, and where time may be afforded, it is the surgeon's bounden duty, bearing in mind a summary of the conditions which notoriously conspire, upon the one hand, to lower vulnerability, upon the other hand to afford protection, to so order the habits, the diet, the surroundings, and the preparation of his patient as to restore his tissues and vital fluids, so far as possible, to their normal condition before he interferes with their functions by an operation.

“A distinct and as yet an unworked field lies before him who will study carefully and for sufficient length of time the effect of anæsthetics in increasing susceptibility and infection. This is a problem which must be worked out rather upon human patients than upon animals, since the conditions are so exceedingly different, most of the animals used for experiment being too relatively susceptible,—dogs notoriously so. I have for years cherished the opinion that anæsthetics affect all people to a greater or less degree in this direction, yet am not able to present to you any definite statistics or statements. Loss of blood is certainly a factor lowering vitality; and in that complex condition of shock it must assuredly be that natural immunity is at least temporarily lowered. Equally important in my estimation are the auto-intoxications and toxæmias, of which two particularly call for mention here. The effect of sugar in the urine, or rather the effect of the condition which leads to its presence, is everywhere recognized; but I am more and more convinced that in the body condition which is most easily recognized by hyperacidity of urine, and which is so often a complication of uricacidæmia, oxaluria, etc., we have a grave and sometimes insuperable obstacle to ideal success after operating. The other condition to which I particularly allude is that which I usually speak of as intestinal toxæmia, and relates to auto-intoxication produced by absorption from the contents of the alimentary canal of substances which ought not to be therein retained, nor allowed to so accumulate nor undergo chemical changes which shall permit such absorption. This condition is in a large measure represented by chronic constipation; and yet it certainly does occur in patients who have a regular daily habit of alvine

evacuation. It is to be recognized by the hue of the skin, by the appearance of the tongue, often by the presence of indol or indican and ethereal sulphates in the urine, and quite often by the diminished elimination of the fluid and mineral elements of the urine. It should be combated, if possible, by a careful course of hot-air or Turkish baths, copious draughts of fluid, the administration of saline laxatives, and of intestinal antiseptics, among which, in my estimation, the very best is a solution of mercury and arsenic in hydrochloric acid (given in the shape of mercuric chloride, dissolved in dilute muriatic or nitro-muriatic acid, with the addition of liquor arsenosi chloridi). I have tried a great variety of the vaunted intestinal antiseptics, but have settled upon the conviction that some such mixture as this gives results far superior to any which can be obtained from salol, naphthaline, etc. If, in conjunction with these measures, we resort to exercise, when it can be taken, to sunlight, which is always available, and perhaps to massage, by which circulation is quickened and equalized, excretion hastened, and waste material dislodged and taken out of the system, we have done what we can to prevent infection.

“And I have, furthermore, for years contended that since the inauguration of the so-called antiseptic era, and in our enthusiasm for combating infection from without, we have lost sight of a most important truth, which we cannot afford to disregard,—viz., that in our enthusiasm for combating infection from without we have almost neglected the measures for, first, the recognition, and, second, the successful prevention of infection from within. Certain it is that, in the majority of instances, the latter (*i.e.*, infection from within) is much the more liable to ensue, and particularly in a class of cases where one is tempted, for one reason or another, to be less careful than he ought to be. I would give, then, this most important practical conclusion to my remarks, that only he who weighs judiciously the possibility or the imminent probability of one or the other of these forms of infection is really capable of guarding against both of them, and that the best surgeon is he who will always take time, when it can be afforded, for the preparation of his patient for operation. In other words, I would remind you of Sir James Paget’s too often neglected statement, that we ought to examine patients for operation with fully as much care as we do for life insurance; and add to it that if this examination be so conducted, we shall often find that which will make us hesitate, and prepare them before subjecting them to the enhanced risk of what may in other respects seem for their good.”

REMARKS ON PERFORATION OF THE NASAL SEPTUM.

DR. CARL SEILER, of Philadelphia, read a paper on this subject at a meeting of the State Medical Society, at Harrisburg, Pennsylvania.

The writer believes that perforation of the nasal septum, and especially of its lower cartilaginous part, is by no means as rare an occurrence as is generally believed. On the contrary, such cases are quite numerous, and the perforations, although unsuspected and easily overlooked at a cursory examination, are frequently the real cause of a long train of symptoms known in a general way as nasal catarrh. Such lesions are looked upon as pathognomonic of syphilis. While this may be true when the perforation exists at the upper bony part of the septum, syphilis is but rarely the cause when the lower or cartilaginous plate alone is affected.

Local causes may produce this condition, and among them may be mentioned continued traumatism. Any frequently repeated and long continued traumatism, though slight at each occurrence, may result in irreparable damage.

Take for example a case in which a depression exists on one side of the cartilaginous septum, produced by continued pressure of a hypertrophied lower turbinated bone or by a localized projection of the nasal septum itself. Such a depression would be a favorable site for the accumulation and inspissation of mucus. A scab soon forms as a result of this drying, causing irritation to the patient, so that he endeavors to remove it either with the finger-nail or by forcible blowing. Slight bleeding follows expulsion of the scab. Such a traumatism may readily loosen the epithelium in the depression and remove the natural covering of the parts and result in abrasion. The frequent repetition at short intervals of even such a trifling loss of tissue must in the aggregate exceed the natural repair, and thus gradually deepen the depression in the septum, which finally results in perforation. This opening, at first extremely small, gradually increases in extent until it may reach a considerable size. Another cause of perforation of the cartilaginous septum is an excoriation or partial necrosis of the nasal mucous membrane so frequently observed in typhoid as well as nasal diphtheria. Rarely abscesses between the cartilaginous plates of the septum cause this condition. The presence of foreign bodies is a more frequent cause, and, finally, unskilful or mistaken surgical interference for the removal of nasal obstructions may result in the formation of a perforation.

The treatment of this condition must be based upon the peculiar pathological, anatomical, and physical conditions in the first place, and upon the extent of the lesion in the second.

Scrupulous cleanliness, topical applications, and surgical interference when necessary constitute the lines of treatment.

In certain cases the closing of the communication between the two fossæ may be secured by means of a hard rubber obturator held in place by a set-screw or clamp somewhat after the fashion of the modern patent sleeve-button. The objection to the obturator, however, is that it does not favor the healing of the denuded cartilages, but simply covers up the opening and consequently does not prevent further necrosis. In this way the lesion continues to increase in size, and it is necessary to increase the size of the obturator plate from time to time in proportion. The most radical method of treatment of these perforations, otherwise incurable, is to perform a plastic operation by cutting out a piece of one of the plates of the cartilaginous septum either above or below the site of perforation large enough to cover it. The piece so removed, after denuding the edges of the perforation by means of a galvanic cautery knife, is held in place by plugs of wood or ivory covered with aseptic punk, or by means of delicate silk sutures introduced through the whole of the thickness of the cartilaginous septum. This latter method of operation the author has employed successfully in a number of cases, and the results have been most satisfactory.

TUBERCULOUS PERITONITIS.

BY ROBERT ABBE, M.D.,

New York.

IN reviewing this interesting subject Dr. Abbe thought it gave a fairer understanding of the multiform appearances of the disease if we viewed it from the stand-point of the bacillus rather than, as others have, from the gross appearance which has led to the division into the ascitic, the dry, and the caseating form.

A sudden tuberculous eruption into the peritoneal cavity may be as acute in symptoms and duration as acute peritonitis from other causes. A slower outbreak may result in ascitic distention in three or four weeks, and a less virulent bacillus action may occupy months in inducing ascites and wasting.

In other cases, possibly due to the route of invasion (penetration through lymphatics, communicating mucous and peritoneal serous coats, or by follicular ulcers,—allowing tuberculous milk to be the medium of infection) a dry or adhesive form follows, in which hectic and rapid wasting result.

Again, the bacillus produces an outpouring of thick lymph and flocculent serum which rapidly becomes purulent, producing unsymmetrical cakes of thickened omentum, matted coils, and encapsulated purulent collections.

The bacillus products rapidly caseate, and ulcerating fistulæ may result.

All phases of the disease may be regarded as representing the life-history of the bacillus and its products.

Tuberculous peritonitis may be and, in the early stages, often is the only site of tubercle deposit in the patient. Hence, if overcome here, a practical cure often follows.

Even when other phases of infection (pleural, intestinal, bronchial) are seen, an operative cure of the peritonitis has often been followed by general recovery.

The mode of entrance of the bacillus is directly through the intestinal wall, or through ulcerating appendicitis or tubal or ovarian tuberculosis, or through the blood.

The claims of a few recent authors, to having cured tuberculous peritonitis by medical treatment, were reviewed and credited.

The unquestioned cure of true tuberculous peritonitis by laparotomy was proved by two classes of cases, those who have long survived operation and those who, having come to autopsy long afterwards, have been found free from tubercles that studded the peritoneum at operation.

Experimental proof in animals corroborates, also: operation by simple laparotomy and evacuation of the ascites—closing the dry abdomen—is credited with a large number of cures.

Irrigation with warm salt solution is advocated by preference. Camphor-naphthol application, as used by Rendu, is advised for bad cases.

Dr. Abbe reviewed many interesting and illustrative cases in speaking of direct medication.

The many theories advanced to account for the surprising cures were carefully considered, and it was said, in conclusion, that the theory that is sustained by most facts is that based on the life-history of the bacillus and the capacity of the animal economy not only to suppress the activity of the organism by encapsulating it, but to remove it by absorption.

The proper opportunity for conquest is not afforded in the presence of ascitic fluid, which acts as a veritable culture bouillon, and by its fluidity aids dissemination.

When, however, the peritoneum has been aroused by congestion which follows evacuation, and a reactionary inflammation is set up, engendering cell hyperplasia, the intruder is walled in and retrograde degeneration sets in.

*TUBERCULOSIS OF THE FEMALE GENITAL ORGANS
(INCLUDING TUBERCULOSIS OF THE KIDNEYS).¹*

BY ALBERT VANDER VEER, M.D.

IN his paper some stress was laid upon the benefit accruing from the past study of abdominal surgery, also reference made to the pathology of older writers, and recent advances in this direction, one of the most important considerations being in the study of the pathological conditions presenting, from the stand-point of histological and bacteriological examinations for the tubercle bacilli. The subject of tuberculosis of the external organs of generation was carefully considered, also of the vagina and cervix, which, though exceedingly rare, still has a clinical history, and, while it is possible to find it as a primary development, from contact with the bacilli of the external surfaces, etc., careful investigation has proved that the ulceration is found, in the majority of cases, on the posterior wall of the vagina. This is the result of, possibly, the deposits of tubercular discharge from the tubes, from the uterus, possibly from bacteria being deposited there in the diseased condition of the male, or from such conditions as previous local lodgement, and the disease developed in that way.

Laceration of the cervix was also emphasized as being a point for development of tuberculosis. Stress was laid upon the fact that the disease was manifestly local, from a tubercular condition of the entire system. Some of the saddest cases in our practice are the ones associated with advanced phthisis.

Careful consideration was given to the subject of tuberculosis of the uterus in the form of tubercular endometritis, and to the fact that the uterus occupies a position for attack from the disease from without as well as from secretions from the tubes. By far the largest number of cases are found in disease of the tubes, fully eight or ten per cent. of the cases of diseased tubes being of the character of tubercular trouble, and unquestionably the focus for the development of tubercular peritonitis. It is noted that the greater number of cases of tubercular disease of the tubes is found among young unmarried women, and not in women who had been married a number of years and borne children. Heredity presents as a strong element in these cases. Garrigues says that "the wall is swollen, its epithelium is thrown off, the ostia are generally closed, the calibre enlarged, and tube filled with a caseous mass."

Tuberculosis of the ovaries is exceedingly rare, yet is to be observed in the form of the caseous variety.

Tuberculosis of the female genital organs is of two varieties: miliary

¹ Read before the American Surgical Association, Detroit, Michigan.

tuberculosis, and chronic, diffuse, fibroid tuberculosis, the latter being known and described in the past as the caseous form of the disease.

In the diagnosis of tuberculosis of the female generative organs, much attention should be paid to the conditions of that individual case, by differential diagnosis, or by exclusion. Whenever it is possible to secure some of the discharge, either from the tubes or from the uterus, more particularly, it should be examined for bacilli. The gross appearance of the sore, in connection with the external genitals, is that of the hardened split pea, more particularly, also within the vagina, with more or less moisture; and the greater the amount of discharge the more rapid seems the tendency to necrosis and breaking down of tissues, with increase of odor. Here the error has frequently been made, especially in regard to the cervix, in mistaking it for malignant disease in the form of carcinoma. The possibility of specific trouble must not be lost sight of. This error is to be avoided by careful microscopical examination of the secretions. There is no doubt that many of the so-called gonorrhœal cases of pyosalpinx are the result of the grafting of the specific form of the disease upon the tubercular tubes already existing, and that it is in these cases we find, when cutting the tubes across, a solid mass of caseous infiltration.

Too much stress cannot be laid upon the necessity of an early diagnosis; and when the disease is locally confined to the external genitals, to the vagina, or to the cervix, or occurs in the form of tubercular endometritis, most gratifying results follow prompt energetic local treatment, such as curetting of external ulcers, of the cervix, or of the cavity of the uterus, the application of carbolic acid or iodine or the use of peroxide of hydrogen; when the discharge is very free and contains pus, packing of the vagina and of the uterus thoroughly with strips of iodoform gauze is to be recommended, and is followed in many cases by prompt recovery.

Repair of a lacerated cervix is not to be forgotten, but is to be done thoroughly.

When it is positively decided that the tubes and ovaries are the source of the disease, a prompt operation for their removal is emphatically demanded. It cannot be done too early, and removal of the appendages on each side is recommended.

The writer's own preference is for abdominal section, believing that his results therefrom have been better than when working through the vagina.

Tuberculosis of the kidney still remains in an exceedingly obscure state. It presents in the form of miliary or general tuberculosis, and the caseous, scrofulous, or true disease of the kidney.

Reference was made to the lectures of the late Alonzo Clark, and his careful classification and diagnosis of the true scrofulous kidney. The symptoms are not altogether clear. The patient complains of pain about the lumbar region; there is a group or lot of symptoms in addition to the lumbar pain, a sense of weight, of dragging about the side affected, extending downward into the inguinal region, accompanied, perhaps, with some

nausea, with loss of appetite, emaciation, and a languid, restless feeling. The patient does not suffer the acute pain of renal colic, etc., that accompanies most of the other lesions of the kidney, but she is not well. Miliary tuberculosis is usually accompanied with development of this disease in other parts of the body. Miliary tuberculosis is the disease of childhood and adolescence, in children occurring more frequently up to the age of ten years. As to the manner in which the common, cheesy, surgical, scrofulous, tubercular lesions of the kidney present, it is believed by those who have studied the subject thoroughly that it is, as a rule, a primary tubercular focus in the lower urinary or genital structures, which gradually extends upward along the mucous surfaces to the bladder and ureter to the kidney.

Chronic renal tuberculosis is noticed in middle life and on in advanced life. It is possible for it to be confined entirely to one kidney, and perhaps destruction of that gland, resulting in a cirrhotic mass or cheesy substance, the kidney becoming incapsulated.

Temperature is the important consideration in the study of tuberculosis of the kidneys, there being a most decided rise at night, continuing thus for several days, which we are not able to account for in the search for tubercular lesions about the system elsewhere.

In all these cases the urine should be carefully examined as to the possibility of bacilli being present, but Dr. Kelly, in a recent article in the *Johns Hopkins Hospital Bulletin*, vol. vii., February and March, 1896, states that this is a very difficult point to settle: often bacilli are not to be found, yet on operation a tubercular condition of the kidney is present.

Dr. Vander Veer reported several cases from his own practice, and emphasized immediate or prompt removal of the kidney and ureter when once the diagnosis was clear, or that an exploration should be made. His own preference is for nephrectomy in all cases possible, doing an extraperitoneal operation, giving most decided endorsement to the nephro-ureterectomy of Kelly.

In all these cases the patient should be given the benefit of a general tonic course of treatment, such as tends to relieve general tuberculosis of the system.

REVIEW OF MEDICINE.

MEDICINE.

IN CHARGE OF JOHN H. MUSSER, M.D.,

Assistant Professor of Clinical Medicine in the University of Pennsylvania; Visiting Physician to the Presbyterian and Philadelphia Hospitals,

J. A. SCOTT, A.M., M.D.,

AND

JOSEPH SAILER, M.D.,

Physician to the Out-Patient Department of
the Pennsylvania Hospital,

Associate in the Pepper Clinical Laboratory.

The Pathognomonic Symptoms of Congenital Syphilis. (*Berliner klinische Wochenschrift*, February 17 and 24, 1896.) By P. Silex, M.D., of Berlin.

Keratitis interstitialis is the commonest syphilitic disease of the eye in young children, but its presence is only presumptive evidence that syphilis exists. A characteristic lesion, however, is a peculiar form of areolar chorioiditis. Scattered over the fundus, particularly in the macular region, are black points and spots, with here and there white spots of larger size, and finally larger white areas with black borders.

Various forms of Hutchinson's teeth have been described, but the only ones that are absolutely pathognomonic are those that present erosions of the two inner upper incisors. Scars are frequently found about the lips and at the corners of the mouth in hereditary syphilis, but as they may also occur as the result of wounds, boils, lupus, canceroid and particularly scrofulous eczema, they are in no sense characteristic. A peculiar form of scar-formation, however, occurs, in which radiating white lines arise from the lips and then give branches that may involve a considerable portion of the face. These scars are from one to three millimetres broad and about one millimetre deep, and their situation bears a certain relation to the subcutaneous muscles. Histologically, they are not properly scars, for the microscopical examination of excised fragments reveals the presence of the papillæ, and that the epithelium is broader than normal, rather than contracted; moreover, the glands and vessels are easily recognized. A small-cell infiltration is found in the corium, and the intima of some of the vessels is thickened. Silex believes that these lines represent the wrinkles of the skin produced by muscular action that have not become smooth, and proposes to call them pseudo-scars. This wreath of pseudo-scars with branches extending into the face occurs only in congenital lues. The three absolutely pathognomonic signs of hereditary syphilis, then, are: 1,

the peculiar chorioiditis areolaris; 2, the erosion of the crowns of the upper inner incisor teeth; 3, the pseudo-cicatrices of the lips and face.

A Case of Paralytic Lyssa Humana. (*Wiener klinische Wochenschrift*, April 16, 1896.) By E. Bamberger, M.D., of Vienna.

The patient was a peasant boy, nineteen years of age, who was brought to the hospital on the third day of the disease. The symptoms on admission were marked hydrophobia when liquids were offered and respiratory spasm upon peripheral irritation. At first the sensorium was free, but later there was some delirium, and, towards the last, violent convulsions and cramp asphyxia. On the day of death the temperature rose to 40° C., and there was a post-mortem rise to 41.5° C. The autopsy revealed the ordinary hyperæmia of the meninges, and, as a curious accidental discovery, a large cyst in the superior vermiform process of the cerebellum. Three rabbits inoculated with the substance of the brain, the cord, and the ventricular fluid, sickened upon the seventeenth day, and died with the characteristic symptoms of rabies. Two interesting features of this case were, first, the total absence of any history of injury, and, second, the appearance of a paralysis on the fourth day of the disease. This involved the left upper extremity, motion being completely lost at the elbow and shoulder-joints, although the fingers still retained some power of movement. At the same time, some incoördination appeared in the movements of the right arm, and later the trunk was also paralyzed. The legs, however, moved strongly until the last. Slight hyperæsthesia was also noted in the left arm. The case presented the type of cervical paraplegia, and in the absence of any neuropathic hereditary influence, Bamberger prefers the explanation of Schaffer, that there is a myelitis of the segment that corresponds to the region of the bite. The case was treated with the serum of an immune sheep, ninety-five cubic centimetres being given in two injections, but no effect was produced.

A second case that was observed later is also added to this report. It presented the following unusual features: A negative history; the presence of a motor paresis affecting the extremities of the right side, and to a lesser extent those of the left; the occurrence of numerous toxic cramps, particularly in the paretic limbs, that were similar to the cramps of tetany. Chvostek's symptom, however, was absent. Aside from slight œdema and congestion of the cortex, nothing abnormal was found in the brain. Rabbits that had been inoculated with the substance of the medulla died of typical hydrophobia.

Bacteriology of Rheumatoid Arthritis. (*Medical News*, May 23, 1896.) By Joseph Collins, M.D., of New York.

The obscurity in which rheumatoid arthritis has been veiled bids fair to become dissipated by recent investigations into its bacterial origin. Three years ago Schüller (*Berliner klinische Wochenschrift*, September 4, 1895)

described a micro-organism which he had found associated with rheumatoid arthritis. It was about 2.6μ long, 0.75 to 0.995μ broad, and exhibited marked polar stains. It was easily receptive of the ordinary stains, and grew with readiness on ordinary culture media, such as gelatin and agar-agar. Recently, Drs. Bannatyne, Wohlmann, and Blaxall have made a contribution to the clinical history, etiology, and pathology of rheumatoid arthritis (*Lancet*, April 25, 1896), which is in the line of Schüller's observation, and which, if substantiated, will be epoch-making in the history of the disease. Drs. Bannatyne and Wohlmann were led, from observation of the clinical aspect of cases and from a knowledge of the work that had already been done in the endeavor to elucidate the cause of this disease, to the conclusion that the disease was due to a micro-organism, and, moreover, they had found, by microscopic examination of the synovial fluid from the affected joints, the presence of a constant and distinct organism. Dr. Blaxall was asked to corroborate or deny these findings. After a most extensive and painstaking examination, the latter found that in the synovial fluid of eighteen cases of rheumatoid arthritis there was an organism which was constant in its characteristics. This organism, morphologically, is a minute bacillus, exhibiting marked polar changes and of variable length,—up to 3μ , or possibly 4μ . It can be grown in culture media; in beef broth it gives the appearance of gold dust, and on agar-agar and serum its growth is almost invisible. It does not grow on gelatine at ordinary temperature. On account of the small size of the organism, and of its slowness of growth, it was found necessary to conduct the experiments on a large scale—two hundred and fifty cubic centimetres of the culture medium—so that any changes in the medium might be easily detected.

In severe cases the organism is found in the blood, but as yet it has not been found in the synovial fluid from distended joints due to other causes. Whether or not the bacteria are present in the synovial membrane cannot yet be said, as experiments to affirm or deny this have not been carried out.

Although Dr. Blaxall is very positive that the organism discovered by Drs. Bannatyne and Wohlmann is not identical with that described by Schüller, we cannot see that he substantiates his position by any incontestable proof. They are practically of the same dimensions, they exhibit marked polar staining and are easy of decolorization. But whether they are or are not identical, the discovery remains an important contribution to the subject.

Lawrie's Views of the Malarial Parasite.—In an editorial in the *British Medical Journal* for May 16, 1896, the writer further reiterates a previously expressed opinion that the view of Surgeon-Lieutenant-Colonel E. Lawrie, of Hyderabad, regarding the conception that Laveran's bodies are not in the nature of parasites, is entirely wrong. Dr. Lawrie is credited with a statement to this effect, upon the truth of which he still insists; and,

considering the present position of sanitary affairs in India and the possibility that public opinion may be influenced by either of the opposing views on this subject, the editorial in question deemed it advisable to repudiate once more Dr. Lawrie's views. It seems that Dr. Lawrie has stoutly asserted that Laveran's bodies are not parasites, and that the figures and descriptions of those bodies given by distinguished writers are misleading; and that the bodies in question are neither more nor less than white blood-corpuscles in various stages of development, variously altered by the true cause of malarial disease, which he considers is still unknown. The editorial referred to considers that Dr. Lawrie's views are founded on an absolutely novel doctrine regarding the origin of white blood-corpuscles,—viz., that at its earliest stage the red corpuscle is nucleated, the white corpuscle being derived from the nucleus of the young red corpuscle,—in fact, that it is the nucleus of the latter which has escaped and become free in the blood plasma. According to Dr. Lawrie, the evolution of the white corpuscle takes place principally in the spleen. When this organ becomes diseased by malarious influences, the escape of the nucleus of the red corpuscle does not take place, evolution is arrested, and the still nucleated red blood-cell passes into the general circulation. It is this nucleus which Lawrie holds to be Laveran's body, which is, he says, an immature white corpuscle. Thus the whole of Lawrie's theory in this matter hangs on a question of physiology,—the origin of the white blood-corpuscle. Views on this point have hitherto, it is true, been somewhat indefinite, but no one has ventured to assert that the white corpuscle originated from the red corpuscle, though a possibility of the reverse has in some instances been suggested. The slender evidence advanced by Lawrie on a theory so diametrically opposed to the accepted views of leading physiologists would cause one to hesitate in accepting it. If Lawrie's views as to this origin of the white blood-corpuscles are wrong, it necessarily follows that that which hangs on these views—his theory of the nature of Laveran's bodies—is also wrong. The writer believes that the descriptions and drawings of Laveran, Marchiafava, Golgi, Mannaberg, and many others are substantially correct, and that Laveran's bodies are genuine parasites; moreover, that they are the cause of malaria,—not, as Lawrie would have us believe, one of its effects. The suggestion is made that the bodies found by Lawrie in the spleens of frogs may be the sporulating forms of *drepanidium*, or of *dactylosoma*, or of some other and similar intracorpuseular parasite, and that he may have been misled in this way.

On the Life-History of the Malarial Germ Outside the Human Body. (*British Medical Journal*, March 14, 21, 28, 1896.) By Patrick Manson, M.D.

The plasmodium enters the human body for one of three reasons: First, a residence there is in some way necessary for its evolution and existence as a species; second, it may enter accidentally and find a suitable medium in

which to maintain itself, but not to propagate its species; third, it may find not only an asylum, but also a suitable place in which to propagate its species, although it possesses other hosts or media elsewhere in nature,—that is to say, man may be an alternative host and the malarial infection of man an example of optional parasitism. As malaria abounds in the tropical wildernesses, the first cannot be true, nor can the entrance be purely accidental, since exposure is almost certain to result in infection; it must, therefore, be a case of optional parasitism. The earliest extracorporeal form is the flagellate body. This appears upon the slide about fifteen to twenty minutes after the blood is drawn. It contains particles of melanin in active motion, and at times a flagellum breaks away and swims about in the plasma with a spirillum-like movement. The flagellate body arises in this wise: at certain times in ordinary tertians, large pigmented intracorporeal forms are seen, and some large spherical bodies not enclosed in red blood-cells; occasionally an enclosed form may be seen to escape and become a free body. After a time the pigment in the free body becomes violently agitated, the body itself is contorted and jerked about, and then suddenly long flagella are projected from its circumference and begin waving about. In certain chronic malignant forms, crescents are also found,—that is, crescent-shaped intracorporeal bodies with a mass of pigment in the centre. After the blood is drawn these gradually assume a spherical form, the pigment commences to be agitated, and finally the flagellate body is formed as from the spherules. Now this transformation must be either a degenerative change or a vital evolutionary one. That it is the latter is indicated by its definitiveness of form, by its movement, and by its adaptation to a certain definite purpose in the life-history of the organism. The movement of the pigment is not of the nature of the Brownian movement. Under favorable conditions, one of which is a temperature below that of the human body, nearly all the crescents and spherules develop into this form, and it can be found in nearly every case if carefully sought. The flagellum probably represents the spore of the rosette form, and the crescent bodies and the spherules of the tertians and the quartans are the extracorporeal homologues of the intracorporeal sporulating bodies. It is not impossible that the flagellate bodies arise from conjugation forms, the result of multiple infection of a blood-corpusele. The exit of the plasmodium from the human body must take place either by its own active efforts, or as the result of hemorrhage, or as the result of some outside influence, such as a suctorial parasite, and the close analogy between the plasmodium and the filaria, as well as the association of malaria and mosquitoes in various regions, renders the last explanation not unlikely. In the human blood, the corpusele acts as a protection to the organism, for when the spores burst out, the phagocytes actively attack and envelop them; and the same is true of the extracorporeal flagellate forms upon the slide. At the suggestion of Dr. Manson, Surgeon-Major Ross, of India, undertook to make a careful study of the relation of the mosquito to the malarial parasite, selecting those cases in

which the crescents were common. It is obvious that one of only three results must occur in the body of the insect; first, the plasmodium would be killed; second, it would behave exactly as upon the glass slide; third, there would be a rapid development into the flagellate form. From the examination of blood from mosquitoes that had been fed upon a patient suffering from malarial cachexia, Ross concluded that, 1, almost all the crescents are converted into spheres shortly after they enter the mosquito's body; 2, the spheres are always found, at first with the pigment massed in the centre, next with the pigment particles in a state of violent agitation, whilst the whole cell acquires a jerking movement; 3, the flagellate organism may be found from seven to thirty-five minutes after the blood is drawn, the whole manifestation ceasing in a very few minutes; 4, spent spheres or pigment masses—that is, the discarded bodies of the flagellate forms—are seen at first in small numbers, later they increase; 5, phagocytes containing spheres and pigment begin to be seen later than the free spent pigment; 6, about thirty per cent. or forty per cent. of the spheres fail to throw out flagella. Quinine appeared to have a paralyzing effect upon the plasmodium and its evolution was delayed. Water in which some of the fed mosquitoes had died was given to a healthy native, and eleven days later he had headache and a rise of temperature, and plasmodia were found in his blood; in other instances this experiment did not succeed. There remains yet the careful tracing of the flagella to their resting place in the cells of the mosquito and then a study of their further existence. Certain objections must be considered: 1, mosquitoes exist where there is no malaria, but it is easy to imagine that other conditions are necessary to the existence of the parasite; 2, malaria is said to exist where there are no mosquitoes, but this Manson, after careful inquiry, doubts; 3, certain students believe that the flagellate form is a degenerate stage. Manson considers that the most serious objection is the fact that the cycle has not yet been completely made out.

Local Increase of Eosinophile Cells in Carcinoma, with Remarks upon the Significance of the Eosinophile Cells in General. (*Centralblatt für Allgemeine Pathologie und pathologische Anatomie*, March 15, 1896.) By E. Przewoski, M.D., of Warsaw.

Local collections of eosinophile cells have already been found in certain inflammatory processes, particularly in the skin in cases of lymphoderma pernicioso, eczema, and pemphigus, in the sputa of asthmatic patients, in hemorrhagic pleural exudates, and in gonorrhœal pus, especially in proctitis. The author has found eosinophile cells, and, indeed, in considerable number, in four cases of carcinoma of the cervix uteri, always mingled with other leucocytes in the area of round-cell infiltration. This discovery impelled him to make a study of the cells with oxyphilic granula; using as material the blood, lymph glands, spleen, and bone marrow of men, horses, dogs, rabbits, and pigeons. He finds that the cells differ in size, in the number and staining properties of the nuclei, in the size and

distribution of the granules, and in the amount of protoplasm. Nuclei were not found, but centrosomes were present, particularly in the cells from the bone marrow of young rabbits. The archoplasma is a thread-like structure, the fibres radiating from the centrosomes, either directly or with a narrow clear space surrounding the latter. The cellular protoplasm seems to be excessively fragile. That the granula are not composed of fat is proved by the facts that they are not soluble in ether, alcohol, xylol, etc.; that they stain readily with the acid aniline colors; that osmium acid does not blacken them; that they occasionally appear to have a crystalline form, and that they contain some water; nor are they, as is proved by the absence of a reaction with iodine, carbohydrates. Ehrlich has urged that they cannot be albuminoids, because they are soluble in an eight-per-cent. solution of carbolic acid in glycerin and retain their staining powers after exposure to high temperatures. They are soluble in acids and alkalis and platinic chloride; water causes them to swell. A mixture of a half-saturated solution of potassium ferrocyanide and hydrochloric acid stains them blue, and ammonium sulphide and hydrochloric acid stain them dark green. These latter reactions, together with their staining properties, led Przewoski to believe that they contain a certain proportion of iron and are albuminous in nature. With Ehrlich and Löwit, he thinks that they originate from the altered protoplasm of the leucocytes; but he does not consider that they have any relation whatever to the neutrophilic granula of other cells. From the fact that the eosinophile cells are found in normal persons in the blood-forming organs, particularly the bone marrow of adults, the author concludes that the eosinophile cells act in a manner the part of glands, and secrete the granular substance that subsequently enters into the plasma and there forms the raw material from which the hæmoglobin is developed. In the embryo, on the other hand, eosinophile cells are not in excess in the blood-forming organs, and other cells probably participate in this function at this time. In the blood of certain invertebrate animals, in which there are no erythrocytes, cells occur that contain granula not unlike those of the eosinophile cells; and in the human blood the eosinophile cells certainly lose their granules to the plasma. Karyokinetic figures are exceedingly rare, but do occur. The presence of eosinophile cells in the tissues of certain chronic inflammatory conditions is at present inexplicable.

New Method of estimating Quantitatively the Amount of Fibrin in the Blood. (*Centralblatt für innere Medicin*, January 4, 1896.) By A. Kossler M.D., and T. H. Pfeiffer, M.D., of Graz.

In order to determine quantitatively the amount of fibrin in the blood it is only necessary to know the amount of the fibrin-forming elements, and the changes occurring during coagulation may be neglected. Fibrin is the calcium compound of thrombosin, which latter is itself a compound formed from the nuclein bodies and the fibrinogen of the plasma, and not coagulable. The real excitant of coagulation is leukonuclein, a body that exists

in the nuclei of the leucocytes, in combination with an albuminoid body in the form of nucleohiston. In blood obtained by venesection a decomposition takes place in the white blood-cells,—that is, they yield nuclein to the plasma, where it separates the fibrinogen into thrombosin and another albuminous body. The calcium salts then unite with the former to produce fibrin. The value of the quantitative estimation of fibrin will probably become apparent when the subject of immunity is more fully understood, as the fibrin generators, according to the investigation of Tichomoroff and Freund, take part very likely in the production of passive immunity. The method now in use is elaborate and involves many sources of error. Now, in the formation of fibrin there is a separation of a part of the albumen contained in the plasma; therefore, the serum must contain less,—that is, be poorer in nitrogen. The method proposed consists of the determination of the amount of N in the plasma and in the serum, which can be done with great certainty, and then the calculation from these results of the amount of N in the fibrin. The procedure is as follows. The blood from a vein is received in a graduate that contains a sufficient quantity of a solution of potassium oxalate (about five cubic centimetres of a four-per-cent. solution to ninety-five cubic centimetres of blood) to prevent coagulation. The plasma is then separated from the corpuscles by centrifugation, and the amount of N contained in it determined by the method of Kjeldahl. Then to a definite quantity of the oxalate plasma sufficient solution of calcium chloride (five cubic centimetres of a two-per-cent. solution to twenty cubic centimetres of 0.2 per cent. oxalate plasma) is added to produce coagulation. The serum is now separated and the amount of nitrogen determined. This result is multiplied by $\frac{p+k}{p}$, p equalling the amount of N in the artificial serum and k the quantity of the solution of calcium chloride; and the result equals the amount of N in the normal serum. The final calculation is made according to the following formula.

$Nf = \frac{v}{v-v_1} (Np - Ns \frac{p+t}{p})$. In this Nf equals the amount of nitrogen in the fibrin of the normal plasma; Np , the N of the oxalate plasma; Ns , the N of the oxalate serum; v , the volume of the oxalate plasma; v_1 , the amount of oxalate solution in one hundred centimetres of blood; p and k as before. The range of error of this method depends, 1, upon the accuracy of the work; 2, on the greatness of the difference between the two nitrogen values. In careful work the range should not exceed ± 0.4 per cent.; or, the amount of fibrin N in one hundred cubic centimetres of blood might be $\pm$ eight milligrammes from the true value. The limits of fibrin N so far determined in one hundred cubic centimetres plasma are 0.05 gramme and 0.15 gramme, and the extreme range of error therefore is sixteen per cent. The presence of leucocytes in the plasma after the subsidence of the red blood-cells is liable to give too high a value to the

amount of N in the plasma, and they must be precipitated by the centrifuge. Three cases were examined by this method, and the amount of nitrogen represented in the fibrin was determined, as follows: a case of typhoid fever 0.0678 gramme N ; a case of facial erysipelas 0.1043 gramme N ; a normal man 0.0460 gramme N .

Practical Aids in the Diagnosis of Pericardial Effusions in Connection with the Question as to Surgical Treatment. (*British Medical Journal*, March 21, 1896.) By William Ewart, M.D.

The author enumerates the following characteristic signs of pericardial effusion: 1. Considerable extension of the lateral boundaries of the total area of dulness. 2. Great extension of the absolute dulness, the sternum absolutely dull. The latter is due to separation of the lungs, and is not pathognomonic, as it may be caused by a dilated heart. 3. Depression of the liver. In obesity the liver is apt to rise, although the area of pericardial dulness is increased. 4. Rotch's sign,—dulness in the right fifth intracartilaginous space; this may also be caused by enormous distention of the right auricle. 5. The lower angle of pericardial dulness projects towards the right; this can never occur as a result of cardiac enlargement. 6. The apex-beat is somewhat within and above the area of dulness of the left side in pericardial effusion, at the extreme limit of the dulness in the case of pericardial enlargement. In pericardial effusion the apex is never raised, occasionally, indeed, as a result of the depression of the diaphragm, it is lowered, but an impulse from the base may sometimes be felt in the third interspace. Among the thoracic signs may also be mentioned the great resonance of the upper part of the chest, the activity of the costal breathing, the bulging of the left half of the thorax, and the altered relation between the clavicle and the first rib. 7. The first rib sign: the upper edge of the first rib may be felt as far as the sternal attachment, but the rib continues to move with respiration, and is not fixed as in emphysema. 8. The posterior patch of pericardial dulness is found at the left inner base and extends laterally usually not quite as far as the angle of the scapula, and vertically to the ninth or tenth rib with an abrupt horizontal boundary, the patch being shaped something like a square. It is an area of partial dulness only and is pathognomonic. 9. Tubular breathing below the left mamma. 10. The posterior pericardial patch of tubular breathing and ægophony. 11. Secondary pleural effusion. 12. Large and slapping pulse. Of course, all these signs may be greatly modified by the presence of pericardial adhesions. [Ewart states, in giving a preliminary description of the normal area of cardiac dulness, that the area of relative dulness extends from one and a quarter to one and a half inches to the right of the right border of the sternum. Careful examination of the cadaver had convinced us that the heart, even when considerably dilated and hypertrophied, never extends as far to the right as this, and hence this area of dulness, as also agrees with our own clinical experience, is much too large.]

I. Small-Pox and Vaccinia: their Manifestations and Inter-Relations in Man and the Lower Animals. By S. Monckton Copeman, M.A., M.D., M.R.C.P.

II. The Composition and Action of Natural and Cultivated Vaccine and Variolous Materials. By John B. Buist, M.D., F.R.S.E.

III. The Accidents of Vaccination. By T. Colcott Fox, M.B., F.R.C.P.

IV. Compulsory Vaccination from a Legislative Point of View. By Edward Seaton, M.D., F.R.C.P.

V. Vaccination and Small-Pox Statistically considered. By E. J. Edwardes, M.D., M.R.C.P. (*Practitioner*, May, 1896.)

The May number of the *Practitioner* is devoted to vaccination, in honor of the Jenner centenary. The journal contains on its first page an excellent portrait of Jenner. And the five papers indicated above are of a high scientific and literary merit.

I. Dr. Copeman, in his studies of the action of vaccine and small-pox on the lower animals, has experimented largely on monkeys. Inoculations of vaccine and of variolous lymph have each given successful results in every instance in which it was tried on the monkey. Experiments were tried to determine the protective power against small-pox of humanized vaccine lymph, calf lymph, and of small-pox lymph. The experiments showed that the protective power of lymph obtained from these three sources is practically identical in all respects when inoculated on the monkey.

In specially-stained specimens of vaccine lymph, taken at a period antecedent to full maturity of the vesicles, minute bacilli can be demonstrated, often in considerable numbers and in practically pure cultures. These bacilli cannot be found, or are found only with difficulty, in mature lymph, for the reason, probably, that they have given place to spores. Eggs inoculated with variolous crusts gave, after a month, a pure culture of a bacillus which morphologically was not to be distinguished from the bacillus found in early vaccine lymph. This bacillus could not be grown in the ordinary culture media, but when inoculated into the calf it produced a vesicular eruption at the point of inoculation. From the first calf thus inoculated another was inoculated, and from the second calf a child was vaccinated, and the vaccination "did splendidly."

II. Dr. Buist has experimented with vaccine on monkeys. He has found in vaccine lymph four different-colored growths,—orange, brown, white, and yellow. A bacterium of constant form is to be found in clear vaccine and variolous lymph, and is probably the cause of vaccinia and variola; still, it seems to be practically impossible to reproduce the same bacteric form by artificial cultivation in solid media outside the animal body. The white, yellow, and orange vaccine cultivations grow directly from organisms in the lymph. The organisms in clear lymph are regarded as spores which develop into the larger forms when cultivated in solid

media. Clear vaccine and variolous lymph, therefore, contain spores of bacteria in suspension, which are distinguished from the micrococci of cultivation by their characteristic difference in size. In the same way opaque lymph, which is an imperfect material for vaccination, may be regarded as a natural cultivation of the organisms existing in clear lymph. This natural cultivation is the cause of opacity of lymph. The discovery of yeast-forms in opaque lymph led Dr. Buist to inoculate monkeys with ordinary yeast, and on carefully studying the results of successive fermentation, variolation, and vaccination of monkeys continued in various orders, he concludes that yeast inoculation modifies the action of both the variolous and vaccine contagia.

III. Dr. Fox divides the accidents of vaccination into several groups. In the first group he considers all those deviations from the typical evolution of the vaccine vesicle, and from the normal accompanying symptoms, which are not due to impure lymph, to the idiosyncrasy or special constitutional condition of the subject, or to imperfection in the details of the operation. In this group he includes abortive, tardy, spurious, too rapid evolution of the lesions, and abnormal size of the lesions; recrudescence, supernumerary vesicles, generalized eruption of vesicles, "raspberry sore," cheloid, dermatitis, swelling of the axillary lymphatics, and ulceration. In the second group he treats of the incidental exanthematic eruptions. In the third group are included the diseases (chiefly of a septic nature) which find a nidus in the wounds subsequent to the operation. These are in many respects the most formidable, and are for the most part quite preventable. In the fourth group the diseases inoculated with vaccinia at the time of the operation are treated of,—syphilis, leprosy, and tuberculosis. That syphilis may be communicated is fully recognized. In the fifth group diseases excited in subjects specially predisposed to them are treated of.

IV. Dr. Seaton believes that such an amount of moderate compulsion as constitutes "a system" cannot be dispensed with without serious public danger. Primary vaccination, well carried out, is an absolute protection for infants and young children. The principle of compulsion in the sense of superseding the rights of parents in this matter has never been thought of by the legislature. What the promoters of vaccination have endeavored to secure in the past and wish to maintain in the future is the early vaccination of practically the whole of the infant population. It would be impossible to secure such an end without some amount of moderate compulsion. Without systematic primary vaccination epidemics would pass out of all control. The necessity for revaccination of those who are brought within the immediate sphere and risk of small-pox is to be taken for granted, but systematic revaccination is not necessary. If reasonable facilities are afforded to public sanitary authorities to provide proper means of isolation of initial cases in epidemic outbreaks, the question of any extension of the principle of compulsion as applied to vaccination might be set aside altogether. As it is, the author would not be one of those to advocate it, be-

lieving, as he does, that the other measures of prevention would be found quite sufficient.

V. From the statistical consideration of vaccination and small-pox Dr. Edwardes draws the following lessons: First, vaccination in infancy, renewed at the end of childhood, renders an individual practically as safe from death by small-pox as if that disease itself had been survived in childhood, and almost as safe from attack. Second, with the present system in England more adults now die of small-pox than in the last century. Third, universal compulsory vaccination in infancy cannot prevent severe local epidemics. Fourth, compulsory revaccination is imperatively required.

J. M. S.

THERAPEUTICS.

IN CHARGE OF ALEXANDER D. BLACKADER, B.A., M.D.,

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ASSISTED BY

D. J. EVANS, M.D.

Absorption of Drugs by the Healthy Skin. Application to Salicylic Medication. (*La Presse médicale de Belge*, March 29, 1896.) By MM. Linossier and Lannois.

At a meeting of the Academy of Medicine of Paris these authors recalled the fact that, in their experiments on the absorption of guaiacol, they had shown that the healthy skin is able to absorb a larger proportion of certain medicinal substances than the usual therapeutic dose. Recently they have experimented with salicylate of methyl, a substance which constitutes nine-tenths of commercial winter-green, and which, taken internally, possesses all the properties of salicylate of sodium in the treatment of acute articular rheumatism. Moreover, this substance is changed into salicylate of sodium in the blood. Salicylate of methyl applied to the skin is very easily absorbed. After the application of one drachm (four grammes) to the thigh of a patient, one to three grammes of salicylic acid may be found in the urine in twenty-four hours; it is also eliminated in large quantity by the intestine, as authors have been able to prove by the analysis of the faecal matter. The daily elimination of urine is regular in the course of prolonged treatment. There are no alterations in the skin. Salicylate of methyl, like guaiacol, is absorbed as a vapor. The technique of the cutaneous application of salicylate of methyl is the same as that used in painting with guaiacol. The liquid is applied with a brush, or uniformly spread, by the aid of a medicine-dropper, upon one of the limbs, usually the thigh. The painted area is covered with an impermeable dressing to prevent the diffusion of the vapors, and is surrounded by cotton to keep up a temperature favorable to volatilization. The dressing is kept in place twenty-four hours. One

drachm (four grammes) is the usual dose of salicylate of methyl. If one wishes to use a larger dose, it is necessary to spread the liquid on a gauze bandage, which is applied to the limb and which is capable of holding the liquid by absorption. The incorporation of the medicine with lard or with vaseline appears to diminish the absorption. The indications for painting with salicylate of methyl are identical with the indications for the use of salicylate of sodium. This method of administration has the advantage of not irritating the digestive tract, and is, at the same time, a remedy applicable locally to painful parts.

Theobromine. (*La Presse médicale de Belge*, March 29, 1896.) By M. Huchard, of Paris.

The author reaches the following conclusions regarding theobromine: First, theobromine is one of the most faithful diuretics; second, theobromine increases the action of renal epithelium without altering it; third, exceptionally (three cases in two hundred), when the kidney is diseased, an increase of albuminuria is noted; the increase being probably due to the absorption of the oedematous fluid of ascites; fourth, the clinical indications for theobromine are cardiac and renal sclerosis, arterial cardiopathies, and epithelial or interstitial nephritis; fifth, nothing is gained by associating theobromine with digitalis, caffeine, or lactose; sixth, the action of theobromine may be prolonged by the addition of one-sixtieth to one one-hundred-and-twentieth grain (one-half to one milligramme) of digitaline on the day on which the last dose of the former remedy is given; seventh, the diuresis started by theobromine is rapid; it appears during the first day; it persists three or four days; after the last dose of the drug is given it is abundant, and amounts ordinarily to five quarts (five litres); its effects are not cumulative; there are no accidents in which it fails to be of service; it may be prolonged, having regard to its feeble toxicity; eighth, theobromine may fail, but it frequently succeeds after the other diuretics have proved useless; ninth, the mean daily dose is from forty-five to seventy-five grains (three to five grammes); tenth, its use in infectious or toxic diseases (pneumonia, cirrhosis of the liver) seems to give good results by urinary depuration.

The Treatment of Diffuse Infantile Bronchitis by Warm Baths. (*Gazette des Hôpitaux*, March 26, 1896.) By M. Renaut, of Lyons.

In children, when the well-known physical signs of severe bronchitis are recognized, accompanied by a rectal temperature of 102.2° F. (39° C.) which is not accidental, there is danger of the passage of a bronchitis, already dangerous of itself, into a condition of capillary bronchitis, frequently fatal. Now, there is a therapeutic measure which is simple and, at the same time, devoid of danger by which this formidable capillary form of diffuse bronchitis may be nearly always avoided. This method consists in giving to the child a bath at 100.4° F. (38° C.), lasting seven or

eight minutes, every three hours, except when it is found that the temperature, taken three hours after the preceding bath, has not reached 102.2° F. (39° C.). The fever falls more or less rapidly, sometimes after the third or fourth bath, and does not recur, while the diffuse bronchitis becomes a slight bronchitis confined to the larger bronchial tubes. At other times the struggle is prolonged for four or five days, during which it is necessary to bathe the child systematically every three hours, day and night. This conclusion is formed after using the warm baths in more than one hundred cases, extending over a period of about ten years. The only accessory to this treatment that has been used is the regular employment of the sulphate or the hydrobromate of quinine. This remedy is used with no pretension of controlling the fever, but as a general tonic. When the bronchial inflammation has extended to the capillary tubes, the security possessed in the former case is lost, but, if the effects of warm bathing are compared with the results of the other forms of treatment called into play in bronchopneumonia, a number of chances of the cure of the patient are gained. Upon the subcontinued fever of capillary bronchitis increase of temperature will engraft itself once or twice a day; even hyperpyrexia may be noted. The temperature goes up rapidly to above 104° F. (40° C.), even to 105.8° F. (41° C.), soon to descend slightly. In the following days the increase of temperature does not appear at the same hour, and it is necessary to be on the watch, since the beginning of the febrile process corresponds to a period of extension of the disease, and it is necessary to give a bath as soon as the temperature rises, and to repeat the bath if the temperature remains high for an hour. The temperature of the water, in this case, is brought down to 95° F. (35° C.) or to 93.2° F. (34° C.), but the bath is never given cold. Sometimes in very dangerous cases it is necessary to continue this treatment during one, two, or even three weeks. As soon as the temperature takes the type of a subcontinued fever, instead of presenting accelerations twice a day, something ought to be considered as gained. The theory of warm bathing and its marked therapeutic effects in severe infantile bronchitis is still entirely to be worked out. It is evident that it does not act as an antithermic by refrigeration. It is much more probable that the bath acts upon the nervous system, producing an unfavorable condition for the growth of pathogenic micro-organisms, or for the formation of the poisons resulting from their battle with the defensive anatomical elements of the organism.

The Treatment of Gout and of Uric Gravel. (*Gazette des Hôpitaux*, March 5, 1896.) By X. Delmis, M.D.

The author recommends piperazine for these conditions. This substance is a crystalline organic base, soluble in water. The urate of piperazine is several times more soluble in water than the urate of lithia. Piperazine dissolves uric acid and uratic concretions in the proportion of half its volume. A number of physicians have proved that the first doses of

piperazine cause an abundant expulsion of gravel and small stones, at the same time that a relief of the pain is manifested. In acute gout piperazine causes a rapid amelioration of the pain and a progressive diminution of the swelling and redness. In chronic gout it appears to have an elective action upon tophi and upon the articular stiffness. The author has seen voluminous tophi disappear and deformed limbs assume an almost normal aspect, thanks to the persistent usage of the remedy which is possible by its harmless action upon the organism.

The Influence, First, of Repose and of Movement, Second, of Alcohol, of Cane-Sugar, of Mucilages, and of Starches upon the Absorption of some Medicinal Substances by the Healthy Stomach. (*Wratsch*, No. 40, 1895.) By M. P. Sokanovsky and P. Bezsonoff.

These two questions have been studied in the laboratory of Professor Tschondnovsky upon ten attendants aged from twenty-one to twenty-four years, in good health and under about the same conditions of life and diet. Iodide of potassium and salicylate of sodium were experimented with, as they could be found in the urine three or four minutes after their administration. M. Sokanovsky has studied the influence of repose and of movement upon absorption. Repose was absolute; when determining the influence of movement the subjects experimented upon walked rapidly or even ran. One hundred and twenty experiments were made with each drug, and, further, the author has made fifteen experiments upon twelve subjects relative to the influence of fatigue upon the absorption of medicines. He concludes: First, the rapidity of absorption of some medicinal substances by the stomach changes with the change of position. Second, absorption is slower when the subject is lying down than when he is sitting. Third, the retardation of absorption is shown not only by the later appearance of the medicine experimented with in the urine, but also by a longer interval between the first indication of its appearance and the presence of a very marked reaction of the substance. Fourth, the rapidity of absorption during movement varies with the nature of the movement. Fifth, absorption of the medicinal substance is more rapid when the subject is walking than when he is running. Sixth, this rapidity is shown by the quicker appearance of the first indication of the reaction of the given substance in the urine and by the shorter interval between the indication and the perfectly clear reaction. Seventh, the greatest rapidity of absorption is obtained by the aid of moderate movements; the rapidity of absorption is at its minimum when the subject is lying tranquilly. Eighth, absorption is delayed in fatigued subjects.

M. Bezsonoff has studied the influence of some of the vehicles used in the administration of iodide of potassium and of salicylate of sodium upon the rapidity of absorption of these drugs. These vehicles were thirty cubic centimetres each of distilled water, ten per cent. syrup, thirty, fifty, and sixty-five per cent. alcohol, mucilage of acacia diluted half or twice with

water, and sago water. The experiments were made in the morning, fasting. The author made two hundred and sixty experiments upon attendants, and sixty upon himself. He concludes: First, the absorption of the medicines from the empty stomach is rapid. Second, thirty or fifty per cent. alcohol hastens the absorption of the substances. Third, a stronger alcoholic solution retards this absorption. Fourth, cane-sugar, ten per cent., accelerates the gastric absorption. Fifth, mucilages retard it. Sixth, starches also retard absorption.—*Gazette des Hôpitaux*, March 3, 1896.

Thyroid Extract in Goitre. (*Universal Medical Journal*, April, 1896.) By Dr. Stabel.

Before the Berlin Medical Society Stabel gave the results of his experiments, in Professor von Bergmann's clinic, in twenty-six cases of goitre treated by thyroid medication. These results agree with those reported from other countries and are entirely favorable. The best effects were obtained by the use of the fresh gland, and Stabel believes that the tablets are not to be recommended, as he noted bad effects from their use in several instances. He reports the case of one man, fifty years old and quite obese, who took a large quantity of the tablets and who died in several days after from severe mental symptoms. Post-mortem examination showed acute œdema of the brain, probably following thyroidin-poisoning. In two other cases mental alienation followed the use of the tablets. Ewald stated, in the discussion, that he had obtained better results with the tablets than with the fresh gland, observing the most remarkable effects in young chlorotic girls suffering from parenchymatous goitre. Complete recovery, however, did not take place. He had noted but slight symptoms of thyroidism, as moderate albuminuria with casts disappearing as soon as the treatment was suppressed. Mendel obtained no improvement in ten cases in which he had tried the tablets. He was obliged to abandon the treatment on account of the palpitation and emaciation which it caused. He did not regard it as suitable for cases of Basedow's disease, in which there is a tendency towards emaciation. Senator also stated that he had not met with success by the method, which could only be expected to aggravate the symptoms of Basedow's disease, if the latter depend on an exaggerated function of the thyroid gland.

Lactate of Strontium in Nephritis. (*Medycyna*, No. 1, 1896.) By Bronowski, M.D.

The author has used lactate of strontium in three cases of acute parenchymatous nephritis, in six cases of mixed parenchymatous and interstitial nephritis, and in one case of interstitial nephritis. He does not agree with Dujardin-Beaumetz as to the favorable action of the salts of strontium on the kidneys through their diminishing putrefaction in the intestines. Direct experiments with bacteria convinced Dr. Bronowski that the anti-septic properties of lactate of strontium were insignificant, and that the

presence of ethereo-sulphuric acids in the urine was not influenced by the use of the drug.—*Universal Medical Journal*, April, 1896.

Creosote in Tuberculosis. (*Universal Medical Journal*, April, 1896.)
By M. Burlureaux, M.D.

In advocating the use of creosote in large doses in the treatment of pulmonary tuberculosis M. Burlureaux, before the Société Médicale des Hôpitaux, insisted upon two facts: (1) That the untoward symptoms caused by it, though apparently serious, are never mortal, and disappear within six or eight days without leaving any trace; (2) that such symptoms occur but rarely, since he had only observed them in three cases, though he had been using large doses for the past five years. Hence, there is no more reason for abandoning the drug on account of the accidents that it may cause than there is for abandoning any other active medicament. In the author's opinion, not to give the largest dose that can be tolerated in each individual case is to deprive the patient of the benefits of the treatment. The physician must decide the limit of the dose, guided by the various manifestations of intolerance.

In the discussion which followed, M. Faisans asserted that creosote had by no means the virtues of a specific, and that it was contraindicated in all cases in which there was fever, habitual dyspepsia, or cardiac erethism. It was true that large doses produced considerable improvement, especially in the body-weight; but the same result could be obtained by cod-liver oil in large doses with two hundred and fifty grammes of meat powder, according to M. Debore's method. In short, while creosote is one of the best balsamics and of great service in bronchorrhœa, it can in no way be admitted as a specific. MM. Ferraud and Lereboullet coincided with these views. M. Catrin expressed the opinion that creosote injections were seldom indicated, but often contraindicated. If a tuberculous patient has any tendency to erethism, creosote should be avoided. It may be of service in the beginning of the disease, in what may be called the latent stage, while of value in bronchial catarrh, it could not, to his mind, be looked upon as a specific. M. Fernet stated that hygienic factors alone could bring about a cure of tuberculosis of slow evolution. Among these factors was to be cited overfeeding, especially praised by M. Debore, the administration of alcohol, cod-liver oil in large doses, and the use of hydrotherapy. He also regarded creosote as contraindicated in the erethic form of phthisis, in alcoholic or gouty patients, or in those with arterio-sclerosis. M. Hanot had noted the disappearance of urobilin from the urine in twenty-eight patients treated by rectal injections of creosote, and he asked whether favorable effects of the administration of the drug by the rectum did not depend on the fact that its antiputrid action was exerted more directly. M. Hayem believed that creosote was always injurious to the digestive tract, especially in tuberculosis, as it is one of the most irritating of drugs and one of the factors in medicamentous gastritis. As regarded its action on urobilin, M.

Hayem has observed that in many patients showing a large quantity of the latter in the urine on entrance to hospital it completely disappeared after some weeks of repose, diet, and forced abstinence from alcoholic drinks.

Concerning the Value of Antipyretics. (*La Presse médicale de Belge*, April 19, 1896.) By M. Binz, of Bonn.

The author discusses under this head quinine, salicylic acid, antipyrin, antifebrin, thallin, and ethyl alcohol. Quinine acts by a direct depression of cellular activity, and not through its influence on the nervous system. This depressing action is manifested on the pathogenic cells of malarial fever as well as on the normal cells of the organism. The antipyretic action of the drug is, therefore, both local and general. Salicylic acid has properties analogous to those of quinine. It has an energetic antifermentative and antiputrefying action; it is not toxic; it is not destroyed in the human organism. The feeble chemical activity of its sodium salt is not an obstacle to its action in the organism, because the active acid is set free by the carbonic acid of the inflamed tissues. It differs from quinine, however, in having a different action upon the cells of the organism, an action which is analogous to that of the members of the following group. The antipyretic action of antipyrin is obtained by its influence on the central nervous system,—that is, upon the head-regulating centres situated in the brain. The characteristic of its antipyretic action is to weaken actual nervous excitation produced by the agent which caused the fever. Antifebrin, phenacetin, and thallin act in a more or less analogous manner. Thallin, however, must be credited with a direct destructive action on the organisms in the infective fevers. Alcohol has an appreciable action in lowering the temperature, particularly in the putrid or septic fevers. The causes of this action are many. The nervous system and the circulation are influenced. The excitation of the heart should also be considered, inasmuch as the circulation in the skin is increased and the heat dissipation is accelerated. Again, large doses of alcohol ought to act as an antiseptic agent on the organism, diminishing the vitality of bacteria. There is no post-mortem elevation of temperature in febrile animals which have been treated by large doses of alcohol. Finally, alcohol is a powerful diuretic, and thus there is an added possibility in its use of a rapid elimination of toxines which cause and keep up the fever.

Salol in Osseous Tuberculosis. (*Le Progrès Médical*, April 11, 1896.) By M. Reynier.

In cases of limited areas of osseous tuberculosis, operation would be performed sooner if one was certain of the limit of trephining. Now salol, which becomes liquid at a low temperature (104° F., 40° C.) and which will mix with iodoform, naphthol, etc., ought to be used for filling the bone. The hot liquid will penetrate the spaces of the spongy tissue, and will crystallize at about 80.6° F. (27° C.). In six cases the space in the bone left

by the removal of the diseased tissue has been filled with this antiseptic mass and the overlying tissues have been united. The injected matter remains in place without inconvenience. The opening which serves for the entrance of the mass does not need to be very large. In a patient who died two years after this treatment, it was shown that the injected substance remained intact. Salol acts, then, as a true antiseptic plug, which will give good results in limited areas of osseous tuberculosis.

Brazilian and Colombian Ipecacuanha. (*Pharmaceutical Journal*, April 25, 1896). By B. H. Paul, M.D., and A. J. Cownley.

The question as to the relative medicinal value of the two kinds of ipecacuanha now met with in commerce has acquired greater importance since the pharmacological observations conducted by Dr. Wild have shown that there is a well-marked difference between the effects produced by the two bases, emetine and cephæline, which are present in these drugs in different relative proportions. Emetine is a good expectorant, but cephæline does not appear to be equal to it in this respect, while, on the contrary, cephæline is undoubtedly superior as an emetic. A careful examination of selected samples of Brazilian and Colombian ipecacuanha shows that, although the total amount of alkaloid in the two kinds of ipecacuanha does not differ very materially, the relative proportions of emetine and cephæline are so different that these drugs cannot be regarded as interchangeable indifferently. In the root of the Brazilian variety there was 72.14 per cent. of emetine and 25.87 per cent. of cephæline; in the stem 65.6 per cent. of emetine and 32.8 per cent. of cephæline. In the Colombian variety there was 40.5 per cent. of emetine and 56.8 per cent. of cephæline.

Phenoleine. (*Gazette médicale de Liège*, April 2, 1896.) By M. Kossel and M. Albu.

Phenoleine in fact is only iso-butyl-phenol. The experiments made by M. Kossel upon dogs have demonstrated that it acts as an intestinal antiseptic, in so far as it excites contraction of the intestine and favors the expulsion of materials which would undergo the putrid fermentation. The disinfectant action ceases at the same time that the contractions disappear. The trials made on man by M. Albu have likewise shown the antiseptic action of phenoleine when it is associated with castor oil. On account of the known repugnance of this substance, M. Albu prepares an emulsion with castor oil and essence of mint. He has thus administered ten grammes of phenoleine in the space of ten days, and has reduced the putrid fermentation of albuminoid matters in the intestine to one-half or one-third. The appearance of phenomena of intoxication did not allow the administration of the remedy to be prolonged. M. Albu concludes that no practical utility can result from the use of naphtoleine, and that the surest method of obtaining intestinal disinfection consists in causing complete evacuation of the intestine and to have the patient take sterilized foods after that.

SURGERY.

IN CHARGE OF HENRY R. WHARTON, M.D.,

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The Whole Duty of the Surgeon.—Commenting editorially upon the paper of von Nussbaum (1887), "On Some Unhappy Accidents in Surgery," the *British Medical Journal*, May 16, 1896, expresses its belief that the *religio medici*, like all religion, should include the rule of confession, and that such confession should be made to others, not secretly. It is a wholesome discipline, a sure method of teaching. It is good for a surgeon to find fault with himself: he should keep a note-book and daily record his work as if his worst enemy had done it. At the end of an operation let him review each stage of it, the most trivial inaccuracy should be noted. Important errors are not nowadays met with: it is the little things,—slight inaccuracies of incision, a moment's delay in tying an artery; let him contrast his fineness of touch with that of a watch-maker or a typesetter, his stitches with those made in fine needle-work. Since the discovery of anæsthetics most surgical operations are done without special skill, and in almost all some slight fault may be found. As von Nussbaum says, a single reverse has more teaching in it than ten successful cases. Students are quick to remember every criticism a surgeon passes on himself, and trust him all the more for it, while they tend to distrust him who seems always satisfied with himself, but finds fault with others. Recognition of one's errors and demerits is essential to practical improvement. If a surgeon will keep a daily record of his slightest faults he will find in it a sure way of improving his skill. "Live in your own heart," says Persius, "and you will find how scanty your furniture is." The editorial offers two suggestions in this connection: The essay of von Nussbaum is short, incomplete, and somewhat old-fashioned; and we want a full, fresh, careful account of the defects of surgery. Happily, grave errors are rare: it is the trivial faults, the slight mistakes of skill or judgment—many of them too slight to have the least influence on the result of the operation—that require to be set forth. The second suggestion is, that surgeons should publish less often isolated cases, and more often groups of cases, sets of consecutive operations, every example that has come under their care. This, says the journal, has been done by many surgeons,—Sir Spencer Wells, Mr. Knowsly Thornton, Mr. Herbert Allingham, and others. The method may be studied in such works as Bardeleben's "Klinik," or in hospital reports. The confession and record of imperfect work, and the publication of consecutive rather than isolated cases, are a sure way to improve the details of operative surgery.

Nephrectomy in Tuberculosis of the Kidney.—E. Müller (*Hospitals-Lidende*, No. 20, 1895) reports the case of a man, aged thirty-five, who for three years had suffered from symptoms of renal disease; the urine contained a great quantity of pus and numerous tubercle bacilli. The right kidney was enormously swollen. Pyelotomy was performed on this kidney and a large quantity of pus was emptied. After this operation pus was constantly discharged through the wound without any mixture of urine, the diuresis continuing to be very fair (twelve hundred grammes daily). A month later the diseased kidney was removed and the general condition of the patient now improved immensely; six months later the patient felt perfectly well and his urine was quite normal. Except for some nodules in the epididymis there were no other signs of tuberculosis in the other organs.—*Universal Medical Journal*, April, 1896.

A New Apparatus for Immediate and Permanent Drainage of the Urinary Bladder after Suprapubic Cystostomy. (*Bulletin of the Johns Hopkins Hospital*, April, 1896.) By Joseph C. Bloodgood, M.D.

The apparatus consists of a rubber-bag reservoir which holds about three hundred and fifty cubic centimetres of urine. Sealed to the upper and central portion of the bag is a thicker piece of rubber with a small opening in the centre, into which the head of the tube is inserted. The ends of an abdominal belt are also fastened to the centre-piece. The abdominal belt carries the entire weight of the bag, so that there is no dragging on the tube. Two rubber tubes lead from the bag, the lower one being used to draw off the urine and the upper one to wash out the bag; both are provided with stoppers. When the apparatus is used for immediate drainage, it is not necessary to change the position of the patient to empty the bag, and when the patient is up the bag can be emptied with no more than the usual unfastening of the clothes. The tube used for immediate drainage is made of hard rubber and consists of three pieces: one piece is shaped like a bolt, the head of which is inserted into the hole of the bag, the elasticity of the rubber making a snug fit. The second piece is screwed onto the bolt so that the rubber bag is held very tightly between the head of the bolt and this piece and leakage is prevented. The straight portion of the tube has a shoulder 1.5 centimetres from the bladder end which is pierced by four holes. The tube is first fixed in the bladder and then the bag armed with the bolt and second piece is screwed into the end of the tube. After opening the bladder, four silk sutures are passed through the wall, not including the mucous membrane, the inner piece of each suture being passed through the corresponding hole in the shoulder of the tube. The tube is inserted into the bladder and the sutures are tied. Gauze is packed down to the bladder about the tube, filling the suprapubic wound. The object of the gauze is to abort any leakage which might take place during the first few days. It may not be necessary, yet it is a safeguard against infection by extravasated urine and aids in holding the

tube in place. The tube for permanent drainage is not provided with a shoulder. It should be long enough to extend at least one centimetre into the bladder. The bladder end should be slightly bulbous, and the tube should be curved or straight, according to the direction of the sinus. The second piece rests on the abdominal wall. The apparatus for immediate drainage will work perfectly for eight days; at this time the sinus leading into the bladder will be lined by firm granulations, the bladder will be fixed by adhesion, and the wound will be in an excellent condition for the introduction of the tube for permanent drainage. For two or three days, until the sinus has contracted about the new tube, some leakage will take place, but most of the urine will be collected in the rubber bag.

NEUROLOGY.

IN CHARGE OF LANDON CARTER GRAY, M.D.,
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A Case of Acromegaly with Autopsy. Tumor of the Pituitary Body. (*Boston Medical and Surgical Journal*, April 23, 1896.) By W. L. Worcester, M.D.

This case presented the usual appearances of acromegaly during life, and at the autopsy the pituitary body was found much enlarged, rather soft, of a grayish color and smooth surface. It weighed fifty-eight grammes and measured 4.6 centimetres in its longest diameter. Microscopical examination showed it to be composed of spindle-cells supplied with numerous thin-walled blood-vessels, and revealed many calcareous nodules of a concentric structure. Not a trace of the normal tissue was to be seen.

In the statistics given by Sternberg, in 1895, of nineteen cases of acromegaly, all presented some change in the pituitary body. Dr. Worcester has found the reports of six additional cases; in only one of these the hypophysis appears to have been found unaltered.

Chronic Anterior Poliomyelitis as the Cause of Chronic Progressive Atrophic Paralysis in Diabetes Mellitus. (*Berliner klinische Wochenschrift*, March 9, 1896.) By M. Nonne, M.D.

The writer mentions seven cases which establish beyond a doubt the existence of chronic anterior poliomyelitis, and adds another in which diabetes had also been present, and which he believes demonstrates the fact that diabetes mellitus may be the cause of chronic degeneration of the motor portion of the cord.

In his patient the atrophy began in the shoulder musculature, involved

later both arms in toto, and extended to the lower limbs. Death was due to broncho-pneumonia.

Throughout the cord, from the cervical to the lumbar region, there were found degeneration of the cells and fibres of the anterior horns, secondary atrophy of the anterior roots, and moderate non-systemic rarefaction of the fibres in the anterior and lateral columns and median portion of the posterior columns, with slight increase of the neuroglia in these parts. Atrophy was noticed in two nerves and three muscles examined.

Dr. Nonne mentions the many manifestations due to the involvement of the nervous system in this disease, especially the diabetic neuritis, and claims that his is the first case of diabetes mellitus in which the diagnosis of chronic anterior poliomyelitis has been confirmed by autopsy.

The poison of diabetes, like lead and alcohol, may act on the motor cells as well as on the peripheral motor nerve-fibres.

The absence of changes worthy of note in the vessels of the cord does not strengthen the theory of vascular disease as the cause of nervous phenomena in diabetes. The rarefaction of fibres in the white matter may have been due to destruction of tract-cells. Cirrhosis of the pancreas in this case led him to infer that the diabetes may possibly have been due to this cause.

Left-Sided Paralysis of the Face, Tongue, Throat, and Larynx in Consequence of a Focus of Softening in the Right Centrum Semiovale. (*Neurologisches Centralblatt*, No. 5, 1896.) By Adolf Wallenburg, M.D.

A man of forty-seven had had insufficiency of the aorta for several years; bilateral myosis, reflex pupillary rigidity, and right-sided abducens paralysis for about twelve months; dementia, headache, attacks of dyspnoea, and vomiting for a still shorter period. His condition had remained unchanged for several months, when, within three days, inability to swallow developed, with entire paresis of the left seventh nerve, paresis of the left side of the tongue, of the left side of the larynx, and to a less degree of the elevators of the left shoulder, oedema of the left conjunctiva and left upper lid, and the formation of two tumors on the left side of the head. There was no reaction of degeneration; merely diminution in response to both currents in the paralyzed muscles. Motion and sensation were not affected in the trunk and extremities.

Under mercurial treatment the tumors disappeared and the paralysis improved. Death occurred after three weeks.

The paresis of the left facial nerve, of the hypoglossus, vagus, accessorius, glossopharyngeus on the left side, without involvement of the extremities, indicated an affection of the left side of the medulla, probably syphilitic, or some growth on the basilar process similar to those on the head.

The oedema of the left eye might have been due to pressure on the

sinus cavernosus. There were no signs of aneurism to explain the paresis of the left side of the larynx. The opinion has prevailed that a lesion in one cerebral hemisphere can cause only bilateral laryngeal paralysis.

Contrary to the diagnosis of a basal process were absence of choked disk, of reaction of degeneration, of involvement of the acoustic nerve, and of the nearly simultaneous development of the paralyses within a very short period without previous symptoms of irritation.

The autopsy justified the diagnosis of chronic syphilitic leptomeningitis based on the symptoms of myosis, pupillary rigidity, paralysis of the abducens, progressive dementia, and headache. The right abducens was found embedded in a mass of tissue and atrophied. A focus of softening was also found in the white matter of the right frontal lobe, probably due to thrombosis of the first branch of the Sylvian artery. This lesion, according to Dr. Wallenburg, explains the unilateral laryngeal paralysis as well as the paralysis in the face, tongue, and pharynx. The gyrus behind the ramus ascendens of the right Sylvian fissure, together with the adjoining part of the anterior central (and possibly of the posterior central) and of the third frontal gyrus, contains motor centres for the entire musculature of the left side of the face and tongue, as well as for the muscles of mastication and swallowing.

Brissaud places the larynx centre in the "opercule frontale," between the ramus horizontalis and ramus ascendens. In this case of pseudo-bulbar paralysis the lenticular nucleus was in no way involved.

Diplegia Facialis. (*Neurologisches Centralblatt*, March 15, 1896, No. 6.) By L. E. Bregman, M.D.

Dr. Bregman refers to some interesting facts observed in paralysis of the seventh nerve. The upper branch is said to be unaffected in supranuclear and nuclear lesions, but it has been shown to be involved, although to a less degree, in central paralysis; on the other hand, peripheral paralysis not seldom affects the orbiculo-frontal branch to a less extent. In bulbar paralysis the contrast offered by the upper and lower parts of the face is usually striking; cases of this disease are recorded in which the upper branch was also involved. Nuclear diplegia with involvement of the complete seventh nerves may occur independent of progressive bulbar atrophy, and as absence of reflexes, change in the electrical reactions, and equal paralysis of the movements of volition and expression, may be observed in the peripheral as well as the nuclear form, the diagnosis may be very difficult. If the sixth nerve is also altered in its function, the lesion is probably nuclear, but may be peripheral.

It is claimed that when the seventh nerve is diseased below the geniculate ganglion and above the exit of the chorda tympani taste is affected on the anterior two-thirds of the tongue, but Stintzing has shown that, as the chorda fibres reach the brain in the fifth nerve, lesion of the fifth nerve or its centre

may cause disturbance in this sense. In such a case sensation need not be altered.

Gowers, Jackson, etc., have claimed that the soft palate is not involved in isolated paralysis of the seventh nerve. Dr. Bregman reports a case followed by autopsy in which the soft palate was not involved, and yet the facial paralysis was due to tubercular basal meningitis.

In most cases of diplegia facialis the paralysis is usually symmetrical, but is not always so. On one side the lesion may be supranuclear, on the other peripheral, or a large lesion in the pons may involve one seventh nerve previous to decussation and the other after, or a focus may be exactly at the decussation of the central fibres of the two nerves. It is not demonstrated whether a single cortical lesion can cause prosopodiplegia.

Apart from progressive bulbar paralysis the most common causes of diplegia facialis are syphilitic affections shown as basal meningitis, endarteritis or foci of softening in the pons, more seldom fracture of the base of the cranium or double otitis media, and exceptionally infection or the so-called rheumatism.

Dr. Bregman reports a case of diplegia facialis which was probably peripheral and rheumatic in nature. Electrical reactions were not changed until the third week,—a statement which must make prognosis guarded in the early stages. Disturbance of sensation in facial paralysis is probably due to involvement of the sensory fibres in the seventh nerve.

Concerning Localization in the Oculomotor Centres. (*Wiener klinische Wochenschrift*, January 30, 1896, No. 5.) By Stefan Bernheimer, M.D.

Dr. Bernheimer extirpated certain ocular muscles innervated by the third nerve and investigated the changes in the nuclei by the method of Nissl. He noticed,—

1. Changes in the nuclei twelve to fifteen days after the operation. The period required was longer than that stated by Nissl as necessary for such alterations in the nucleus of the seventh nerve after a similar experiment.

2. These changes occurred only when the muscle was entirely extirpated and not merely cut through.

3. They were similar to those stated in the description given by Nissl for the seventh nucleus. The chromophilic elements and the cell-nuclei were involved. The cells became round, the processes were less distinct or absent. Fourteen days after the operation little was to be seen of the structure, and the cell-body appeared almost homogeneous. The degenerative process was not equally advanced in all diseased cells.

4. When all four external muscles innervated by the third nerve were destroyed in a rabbit and the nuclei examined fourteen days later in a series of forty-five sections, counting from behind forward, a great number of altered cells were noticed on both sides of the median line in the first

thirty sections, and these were more numerous on the side opposite the lesion. In the proximal end of the centre the degenerated cells were less numerous, and in the last eight or ten sections only normally-formed cells were found.

It appears that in rabbits the four external ocular muscles innervated by the third nerve have their centres in the distal and middle portions of the oculomotor nucleus, and especially in the contralateral side, whereas the cells for the internal ocular muscles are located in the most proximal portion.

Diffuse Meningo-Myelitis in Tabes, General Paralysis, and Spinal Syphilis. (*Archives de Neurologie*, 1895.) By J. Nageotte, M.D.

In tabes, general paralysis, and spinal syphilis, there are diffuse, vascular, and connective-tissue lesions, with special involvement of the veins, which, by greater intensity at some one part of the nervous system, produce one of these three diseases. In tabes the morbid process is neuritis of the posterior roots (see December number, 1895, of the *INTERNATIONAL MEDICAL MAGAZINE*), in general paralysis it is meningo-encephalitis, and in spinal syphilis it is meningo-myelitis.

Four cases with histological examination are reported, one of general paralysis, two of tabes, and one of tabes with general paralysis. All four presented diffuse meningo-myelitis, and three meningo-encephalitis; in one a distinct circumscribed patch of myelitis was found. In five cases of pure general paralysis and in six associated with tabes, Dr. Nageotte has noticed meningo-myelitis. He considers this a constant condition in tabes. He has found the infiltration of round cells greater in the meninges than about the vessels in the cord. To judge from his cases the posterior part of the meninges is not more involved than the anterior, although the opposite condition has been stated as occurring in tabes. The lesions are the same as those found in spinal syphilis. This meningo-myelitis is not the cause of tabes, though it may produce destruction of fibres and give rise to symptoms, especially when localized in a distinct patch, as in Case No. IV. of his paper. It is undoubtedly due in the great majority of cases to syphilis. Possibly tuberculosis may cause diffuse lesions histologically similar to these described, but it is a question whether the development of the process is the same.

PATHOLOGY.

IN CHARGE OF ALLEN J. SMITH, A.M., M.D.,

Professor of Pathology in the Medical Department of the University of Texas, Galveston, Texas,
AND

HENRY W. CATTELL, A.M., M.D.,

Demonstrator of Morbid Anatomy in the University of Pennsylvania; Prosecutor to the American
Anthropometric Society; and Pathologist to the Presbyterian Hospital, the Institution
for Feeble-Minded Children at Elwyn, etc.**The Tsetze Fly.** (*British Medical Journal*, May 16, 1896, Editorial.)

The tsetze fly (*Glossina morsitans*, Westwood) was first accurately described by the great traveller Livingstone. It has long been believed that this fly was, if not the cause, at least the principal medium for the distribution of the disease with which it was apparently associated. It is a dipterous insect, slightly larger than the common domestic fly, and is provided with powerful maxillary apparatus by which it penetrates the skin and sucks the blood of the lower animals and even, traversing the clothes, of man himself. Being a voracious blood-sucker, searching its food from one animal to another, it is an effective medium for the transmission of the germs of blood-diseases. It has a wide distribution, being found almost over the whole of Central Africa, abounding also to the north of the Transvaal and on the right bank of the Zambezi; it is also common on the low country between the Ougogo and the eastern shore of the continent. It shuns villages and cultivated districts, preferring the borders of swamps and woody places; its existence and distribution depend, curiously enough, on the presence of large game. The goat, the buffalo, the antelope, the zebra, and man are not seriously affected; but the dog, the ox, the sheep, the ass, and the horse, when bitten by it, are doomed to almost certain death. Travellers relate how large herds of oxen have perished, and how, in this way, it is a serious obstacle to the settlement and civilization of the dark continent. The nature of the poison supposed to be introduced by the tsetze fly has hitherto been unknown. Livingstone suggested that it might be derived from the secretion of certain glands which are a prominent feature in the anatomy of the insect. Others have thought that it might be a germ of some sort. Others, again, have denied that the fly was in any way the cause of the disease associated with its presence, known as "fly-disease." It would now seem that natives, and to a certain extent Livingstone also, were right as to the relationship of the fly to the disease, though wrong as to the nature of the virus. Surgeon-Captain David Bruce has shown that the true cause of the tsetze-fly disease is not any secretion or property of the fly itself, the insect being merely the passive agent for conveying a living virus from infected to uninfected animals. This virus he shows to be a protozoon, closely resembling, if not identical with, the *trypanosoma evansi*, the acknowledged cause of the surra disease of India. Bruce has also shown that the tsetze fly, having fed on the blood of an affected

animal, can, in feeding upon an unaffected animal, introduce the trypanosome with its bite, producing death, with a high degree of anæmia, accompanied by wasting and dropsical swelling, preceding the fatal issue. Bruce asserts that the tsetse fly does not lay eggs, but gives birth to a living larva which immediately seeks to bury itself in the ground. The natives claim that the proper habitat of this larva is the dung of the buffalo. If this be true, it explains the fact that "fly-disease" vanishes with the disappearance of large game from a given district.

Bruce's discovery, says the editorial, will draw attention once more to the part played by insects, particularly blood-suckers, as factors in pathology. The rôle of the mosquito is beginning to be recognized; that of the tsetse is now established, and possibly, before long, other blood-suckers will be found to possess similar properties, either as active agents in the biological cycle of disease-germs, or as media for their conveyance from one human being or from one animal to another, as in the case of the tsetse fly. It is hoped that encouragement and opportunity will be given Dr. Bruce to continue his investigations.

Danger to the Cause of Sanitary Reform. (Abstract of a paper read before the Pennsylvania State Medical Society.) By Prof. J. W. Moore, M.D.

This physicist and physician is of the opinion that there is a real danger to the cause of sanitary reform from a too hasty acceptance of theories which result in proposing, adopting, and enforcing regulations which are a hardship to the people without accomplishing good. Every regulation founded upon theories which have failed to stand the test of scientific examination reacts in the minds of the voters to the detriment of the cause. Having these views, he showed the weak places in the modern theory of the origin and dissemination of contagious diseases. He claimed that evidence from clinical, bacteriological, and epidemiological sources must agree, and that in particular diseases they do not. Science is often retarded by the expression of opinions by learned men. Newton himself is responsible for the backwardness of the science of optics. We must avoid the confusion of coincidences with similarities. The old proofs of contagion are not obsolete; truth never is. But in the case of tuberculosis, for example, they will not apply, because the disease is too old, the distribution too wide, and the cases too chronic. The modern theory of the parasitic origin of disease is fascinating, and has many points which appeal to our minds by their truthfulness. The researches of Koch, Pasteur, and others have opened a boundless field for investigation. Let us honor them always. In this department of science as in others the disciples with less knowledge claim more than their masters. Koch, for example, insisted upon four postulates; many of his followers accept contagion on even one; some on none proved. These postulates have become rather ancient history, but Koch was right; they are not axioms which are self-evident but postulates, the truth of which may be denied. In

the mean time other questions have been opened up which make the investigation still more difficult. The crucial test of the theory is the reproduction of the exact disease in man; this has not been effected.

The results of a laboratory experiment cannot be predicated of an experiment performed by Nature in her own way; so many new conditions are introduced that to conclude from the first that the second will show the same outcome is absurd.

The possibility and the probability of infection must be distinguished when the question of actual contagion is taken up for discussion. The conditions are so different that the experiment is practically not the same. The same disease is not equally contagious under the same apparent circumstances; the same disease is not equally communicable to different persons nor to the same person at different ages. Hence all contagious diseases are not to be subjected to the same regulations.

FORENSIC MEDICINE.

IN CHARGE OF LORENZO D. BULETTE,
Of the Philadelphia Bar.

VISITING LIST OF A PHYSICIAN AS EVIDENCE IN SUPPORT OF HIS CLAIM FOR PROFESSIONAL SER- VICES.

THE book entries of a physician or surgeon, if made at the proper time and itemized as minutely as is required in the case of a merchant, may be properly received as evidence to prove a claim for medical services; but a physician's visiting list containing simply a name with a succession of hieroglyphics, to be explained only by the person making them, who, in this case,¹ was the physician himself and an incompetent witness, inasmuch as his patient against whose estate the claim was sought to be established was dead, is clearly inadmissible as a book of original entries to prove a claim for such services against the estate of such decedent.

This was the rule of evidence applied in *German's Estate*, and it has since been followed in Pennsylvania. Ashman, J., in passing upon exceptions taken to this ruling, said, "The rule of evidence which introduces a tradesman's book of original entries to prove his sales, is permitted to override the principle that a party may not manufacture evidence for himself, on the ground of convenience. It cannot be said to have been dictated by necessity, because in England, where these books serve only as

¹ *German's Estate*, 16 Phila. 318 (1883).

memoranda from which the party producing them may refresh his memory, it has been found that all the advantage, without any of the danger incident to this character of proof, is obtainable. For the reasons which justify its use in the case of a merchant, it has been so far extended as to embrace, perhaps, the books of any person whose business is not in money, and is of such a nature that its transactions can be itemized with the precision with which a sale may be recorded. It is perfectly consistent with this broad statement that a doubt should have been expressed in *Hale's Executors vs. Ard*,¹ whether the books of an attorney containing charges for advice are evidence. Such entries, as was there said, must be incapable of certainty in description, because the services themselves are indefinite in their nature, and can neither be gauged by the time they occupy, nor compared with other similar services with which a jury is supposed to be acquainted. But this objection can scarcely be said to apply to the record kept by a physician. It may cover a daily entry of each visit, with the name of each patient, a list of the medicines furnished, and the price which custom has fixed for the particular service. Such a record will comprise all the incidents of certainty of time, person, labor, and value, and each entry will be complete in itself. No more than this is required in the books of an artisan, and the measure of necessity is at least as great in the one instance as the other. If the proposition has been correctly stated, it affords an easy test of the validity of the proof submitted by the claimant. His diary or visiting list, as a physician, contained on each page a list of names of patients, with tally marks opposite, in columns which were headed separately with the days of the week; the name of the month appearing at the top of the page, and the date of the year on the cover. One column at the end of the space for each week was headed 'Amount.' Preceding these lists, as a sort of preface to the book, was a 'Table of Signs.' This table embodied a series of hieroglyphics and figures, which were intended to denote visits made and to be made, and visits repeated or to be repeated; consultations proposed or made; services at the office; visits at night; medicines furnished, and the like. It is quite clear that entries patterned after this fashion could serve, at best, only as memoranda from which to make more formal charges. As original entries, even if decipherable, they were incomplete, because their form admitted only of a weekly charge in money, and, in point of fact, no charge at all appeared to have been made. Allowing the utmost latitude to the plea of convenience and necessity, the law cannot tolerate as self-proving an entry of services which can be translated only by means of a glossary. Such writing would be as unintelligible to any ordinary jury as a Hebrew bible to a deputy sheriff. The auditing judge, therefore, properly threw it out of the case. The sum which he finally awarded the claimant, we think, was all that was shown by the oral testimony to be due."

¹ 12 Wright, 24.

And, in a recent case,¹ Hanna, P. J., in following the law as above laid down, said, "The physician, the claimant, was, through his own want of care and forethought, unable properly to prove his claim for medical attendance and services to the decedent. By reason of the death of the latter, the claimant was incompetent to testify as to matters occurring in the lifetime of his late patient, so far as related to his own claim. This he must be presumed to know, and a due regard for his own interest should lead him to keep a book of original entries, showing a charge for attendance, with the date, the name of the person against whom the charge is made, and the amount of compensation for the services or attendance. If this had been done, the book properly and regularly kept, supported by the testimony of the claimant or his clerk who made the entries, will be *prima facie* evidence, and thus far sustain the claim. But, on the other hand, the physician relied upon what is known as a 'visiting list' to prove the number of his visits, and the parol testimony of experts to show their value. Such a book, containing simply a name, accompanied by a succession of hieroglyphics, to be explained and translated only by the person making them, who, as shown, is an incompetent witness, is clearly inadmissible as a book of original entries."

And the judge continues, with some emphasis, "It is a matter of surprise that physicians are so lax in this respect, and the present case furnishes an illustration of the danger of depending upon that which is simply a memorandum book for their own information and to refresh their recollection. In fact, in the case before us, if the testimony of the niece of the decedent had not been attainable, the claim would be entirely without support, and this alone prevented its entire rejection. We think the claimant should, under the circumstances, be content with the allowance made to him by the auditing judge."

The rule excluding physicians' visiting lists, as books of original entry, as applied in Pennsylvania, prevails, perhaps, in the other States of the Union, except Mississippi.

¹ Kelley's Estate, 5th Dist. Rep. 283 (1896).

BOOK REVIEWS.

OBSTETRIC ACCIDENTS, EMERGENCIES, AND OPERATIONS. By L. Ch. Boisliniere, M.D., LL.D. Philadelphia: W. B. Saunders, 1896.

This volume is intended for the practitioner, to guide and assist him in meeting obstetric emergencies. Part I. discusses "Accidents to the Woman," and contains chapters upon abortion, puerperal hemorrhages, adhesions and retention of the placenta, and inversion and rupture of the uterus, obstacles to labor, the uncontrollable vomiting of pregnancy, the induction of premature labor, sudden death in labor, puerperal convulsions, puerperal insanity, displacements of the pregnant uterus, and dropsy of the amnion and hydatiform mole. Part II. deals with the "obstetric operations." Part III. discusses "accidents to the child." The author follows the French school of obstetrics, most of his references being made, as stated in the preface, to "French authorities, because the art and science of midwifery originated in France, where they still hold a pre-eminent rank."

The purpose and scope of this book are commendable, since the practitioner cannot too frequently have impressed upon him sound doctrines and explicit directions to meet the emergencies of obstetric practice with skill and judgment. We regret to say that in some respects the present volume is not all that it should be. A few quotations will suffice to indicate that its teaching is not modern, and not always to be relied on. When discussing the preventive treatment of abortion the author says, p. 29, "In plethoric patients, with a strong vibrating pulse, good results have been obtained from a venesection of moderate amount. From eight to ten ounces of blood may be taken from the arm" (Depaue).

Plugging the uterine canal with cotton steeped in a strong solution of perchloride of iron is recommended for the treatment of abortion, and the curette is not to be used until a fetid discharge occurs.

After removing an adherent placenta at term "quinine and brandy should be administered freely to guard against septicæmia" (p. 57). Incomplete laceration of the perineum is defined as one beginning at the vulva that does not involve the sphincter of the anus, and, page 81, the following appears: "Incomplete lacerations do not require any particular treatment, as they heal spontaneously. The lower limbs ought, however, to be kept together for a week by means of a napkin or bandage tied around the knees, the woman being on her side; cicatrization then sometimes takes place by first intention, and sometimes after suppuration. In this case it is not necessary to use any suture; a few touches of nitrate of silver may promote healthy granulation."

It is unnecessary to point out other errors in teaching. In some respects the book is commendable, but it contains so much that is old that it will require a trained obstetrician to select the wheat from the chaff. Very often the advice of various French obstetricians is given at great length, and the practitioner surrounded by wealth of advice is at a loss to know which plan of treatment he should select. Directions for treating accidents and emergencies, in whatever branch of medical practice they may occur, should above all things be reliable as well as clear, concise, and practical. In many respects the present volume lacks these qualities.

R. C. N.

ATLAS OF TRAUMATIC FRACTURES AND LUXATIONS, WITH A BRIEF TREATISE. By H. Helfferich, M.D., Professor at the University of Greifswald. New York: William Wood & Co.

This book is one of Wood & Company's series of Medical and Surgical Atlases. It contains one hundred and forty-two pages and is embellished with fifty-six plates, each containing one or more cuts. The drawings present the principal types of fractures and luxations and their most common mode of treatment. The anatomical relations of the bones with the muscles, the blood-vessels, and the nerves are graphically stated. A glance at the plates affords a theoretical and practical study, each one explaining itself. The sections of the Atlas are prefaced by a short, condensed, and at the same time very complete description of the most classical mode of treatment. The author of this book, who is a recognized authority and an excellent teacher, understands the useful advantage of condensing the wide-spread field of fractures and luxations into a narrow compass. The book will undoubtedly meet with approval and appreciation not only from the student, but also from the practitioner who may seek to review rapidly the important field of bone and joint injuries, and thus impress his mind with the most typical pictures of those disorders. It will also serve as a valuable book of reference. G. E. R.

THE THERAPEUTICS OF INFANCY AND CHILDHOOD. By Dr. A. Jacobi, Clinical Professor of the Diseases of Children in the College of Physicians and Surgeons (Columbia University). Philadelphia: J. B. Lippincott Company.

This book, dedicated to the author's co-operator and assistant, Dr. F. Cooper, contains five hundred octavo pages. The name of Jacobi alone is a sufficient guarantee of the excellent classical and practical arrangement of their contents. His experience of forty years, here recorded in a masterly manner, renders him very well fitted to furnish the profession, and especially the busy practitioner, concise and reliable information regarding the care of children in health and disease.

The contents are comprised in sixteen chapters, the first three of which are devoted to general therapeutic views and measures; the remaining chapters relate to the treatment of special diseases, the whole being closed with an appendix and index. Chapter I. is devoted to the dietary of sick children. The author points out as a principal rule that it is less important for the physician to discover what the child eats than what it is able to digest. The prophylactic value of his dietetic and hygienic rules is at once apparent, and, as the best cure, should particularly impress the physician. He also considers as a very important factor the exact and skillful appliance of a tasty drug. His statement of the diastatic effect of the salivary glands and the temporary appearance of lactic acid and free hydrochloric acid in the stomach, and, furthermore, the nutritive benefit the organism derives from water, sugar, starch, fat, casein, etc., is most interesting. The dietetic rules, especially in acute and chronic gastro-enteritis and in constitutional diseases due to special or general nutritive disorders, are very exact, and abound in scientific principles and practical suggestions.

The newly-born—the subject of the next chapter—are treated upon from birth to the age of six weeks. The information regarding the treatment of asphyxia, atelectasis, ischæmia, hæmaturia, sclerema, and concerning bathing, the treatment of the cord, umbilicus, and icterus, are all very valuable. The author then passes to Chapter III., which contains the rules of general therapeutics. He emphasizes most earnestly the fact that prophylaxis is the chief factor in the care of children. He then proceeds naturally to speak of the hygiene for school-children. Bathing, cold washing, exercise, sufficient remission of the hours of study, he thinks are subjects of great importance. The best exercise for a child he thinks is play,—less books and more fresh air, with large play-grounds,—these are good preventives of disease. The author cautions against too large doses of medicine. The subcutane-

ous administration of drugs is then explained. In the fourth chapter constitutional disorders are discussed. The author describes scrofulosis separate from tuberculosis. He advocates the extirpation of scrofulous glands. The infectious diseases are considered in Chapter V. He gives strict indications for the use of warm and cold baths, and considers antipyretics. He says what quinine is in malaria antitoxine is in diphtheria. Worthy of note, furthermore, is the author's statement regarding acute rheumatism, which he declares is a relatively frequent disease with children. Several pages are devoted to the sanitary regulations in connection with infectious and contagious diseases. Chapter VI. relates to diseases of the digestive tract, and paranephritis, hernia, liver-disease, etc. With the same exactness he discusses the dietary, medical, electrical, and mechanical treatment of these maladies, pointing out always the measure which has proved most serviceable in his own experience. In Chapter VII. genito-urinary diseases are considered, followed in Chapter VIII. by diseases of the respiratory organs. Here he recommends O'Dwyer's intubation. He condemns the use of antipyretics in pneumonia, if the daily remission of fever is not well marked. No bathing if the extremities are cold. In collapse he recommends digitalis, strychnine, and nitro-glycerin. The treatment of empyema is explicitly indicated. In Chapter IX. the organs of circulation are treated upon. Digitalis in his opinion is well borne by children. The nervous diseases are arranged classically in Chapter X. The author is not too prolific, yet covers the ground fully. It is worthy of note that the author does not believe much in electricity. He disproves of craniotomy and craniectomy in idiocy. The lumbar puncture of Quincke and the frequent presence of the pneumococci in meningitis are also referred to. The author does not believe that marriage between relatives gives rise to constitutional or mental disease, providing hereditary diseases in an ascending line have not been present. In Chapter XI. twenty pages are devoted to therapy of skin-diseases; he also gives in two chapters a review of the principal eye and ear lesions. These are followed, in Chapter XIV., by the treatment of myositis and by a description of diseases of the muscles. In Chapter XV. the diseases of the bones and joints are considered, and here he discusses the operative treatment of congenital hip-joint luxation and the injections of iodoform. The use of guaiacol is well recommended. In the last chapter we find some valuable additions to pediatrics, which have been recently discovered and applied. Among these the treatment of diseases, like pernicious anæmia, carcinoma, sarcoma, infantile scurvy, myxomata, and diphtheria, with animal extracts, is discussed. He gives, furthermore, far-reaching statistics regarding the treatment of diphtheria with Behring's antitoxine, and closes the book with his views regarding the sterilization of cow's milk.

By reading Jacobi's work we gain many points of valuable information. The discoveries of recent years in modern therapeutics are critically reviewed, and incorporated with older measures and remedies that have proved satisfactory in his hands during an experience of many decades. As the book also combines symptomatology and etiology with the therapy of children, we have in the work a text-book of high standard.

G. E. R.

FIG. 1.



Posterior region of leprosy of the mixed type.

FIG. 2.



The so-called "leper claw."